DOCUMENT RESUME

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ABSTRACT

Presented is the final evaluation report of a project designed to develop a prescriptive program for learning disabled children (grades 7-12) which included a screening/assessment program with 96 students and the writing and implementation of individual educational programs with 171 students. It is noted that in the area of research and development, a multi-media materials catalogue was produced and a 2-year evaluation design was implemented. Reported for the year 1974-75 is program evaluation involving a comparison of two treatment groups using atypical intervention strategies -- group counseling and biofeedback. Among tentative conclusions listed are that biofeedback training produced a consistent positive change in mathematical ability and a significant decrease in underlying anxiety, that biofeedback training produced marked gains in the level of Ss' study habits, and that group counseling produced the strongest gains in reading achievement scores. (IM)

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ED132772

EC

PROGRAMS FOR CHILDREN WITH SPECIFIC LEARNING DISABILITIES

P.L. 91-230, Title VI-G

12/27

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FINAL EVALUATION

July 1, 1974, to June 30, 1975

GRANT NO.: OEG-0- 73-5264

PROJECT NAME: CHILD SERVICE DEMONSTRATION CENTER

PROJECT LOCATION: Route 3, Hillside School
Cushing, Oklahoma 74023

PROJECT DIRECTOR: Deborah A. Murphy
(signature) Deborah A. Murphy

DATE OF REPORT SUBMISSION: October 1, 1975

EC092203

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

FORM APPROVED
OMB NO. 51-R1091

PROGRAM PERFORMANCE REPORT *(Discretionary Grants)*

Part I

All grantees with awards from programs listed under "General Instructions" above respond.

1. Date of Report:	2. Grant Number:
October 1, 1975	OEG - 0 - 73 - 5264
3. Period of Report: From: July 1, 1974 - June 30, 1975	To: U. S. Office of Education, Grant and Procurement Management Division, ~~Education for the Handicapped~~ 400 Maryland Avenue, S.W. Washington, D.C. 20202

4. Grantee Name and Descriptive Name of Project:

Learning Disabilities Program
Child Service Demonstration Center
Title VI-G - Oklahoma

GRANTEE - Oklahoma State Department of Education

Certification: I certify that to the best of my knowledge and belief this report *(consisting of this and subsequent pages and attachments)* is correct and complete in all respects, except as may be specifically noted herein.

Typed Name of Project Director(s) or Principal Investigator(s):	Signature of Project Director(s) or Principal Investigator(s):
Deborah A. Murphy	

Part II ***("Accomplishment" Reporting)***

A. All grantees, except for those with awards under 13.443 and 13.447 are to respond to this Section A. Grantees under 13.443 and 13.447 go to B of Part II.

The grant application for programs 13.445, 13.446, 13.450, and 13.520 provided for the following functions or activities as categorical headings in the budget and narrative sections:

Research and Development
Demonstration/Service
Evaluation
Dissemination
"Inservice" Training

Programs 13.448, 13.451, and 13.452 do not usually require a breakout since the primary function or activity is intrinsic to the respective program.

For each of the above programs, functions, or activities *(as well as those of special import for certain programs; e.g., replication, advisory councils, parent involvement)* discuss the objectives and subobjectives presented in the approved application *(in narrative format)* in terms of:

(a) Accomplishments and milestones met.
(b) Slippages in attainment and reasons for the slippages.

Refer back to your application and utilize your quantitative quarterly projections, scheduled chronological order and target dates, and data collected and maintained as well as criteria and methodologies used to evaluate results for (a) and (b).

Also highlight those phases of the plans of action presented in your application that proved most successful, as well as those that upon implementation did not appear fruitful.

Grantees finishing this portion of Part II, go to C of Part II.

B. Reporting for Grantees under 13.443 *(Research and Demonstration)* and 13.447 *(Physical Education and Recreation Research)*.

Discuss major activities carried out, major departures from the original plan, problems encountered, significant preliminary findings, results, and a description and evaluation of any final product. Either include copies of, or discuss: information materials released; reports in newspapers, magazines, journals, etc.; papers prepared for professional meetings; textual and graphic materials; completed curriculum materials and instructional guides, or drafts if in a developmental stage, special methods, techniques and models developed; tests, scales and other measuring services used.

When finished with this portion of Part II, 13.443 and 13.447 grantees go to C of Part II.

C. All grantees are to respond to this Section C. Discuss the following:

(1) Unanticipated or anticipated spinoff developments *(i.e., those which were not part of your originally approved subobjectives, but which are contemplated within the purpose of the Education for the Handicapped legislation, such as new cooperative interagency efforts, a decision by volunteer(s) to pursue a career in special education, new public school pol-*

(Part II, Section C, continued from reverse)

key to integrate handicapped children into regular classrooms, enactment of mandatory or other State legislation affecting early education, relevant new course offerings at universities, etc.)

(2) Where outputs are quantified in response to any portion of Part II, relate quantifications to cost data for computation of unit costs. Analyze and explain high-cost units.

(3) Indicate other matters which you would like OE to know about *(e.g., community response to the project, matters concerning the project's working relationship with OE, technical assistance of OE staff, or any other relevant subject.)*

Part III

All grantees with a Demonstration/Service function or activity are to complete Table I. All grantees under 13.488 and 13.451, as well as those under other handicapped programs with a Training/"Inservice" Training activity are to complete Table II.

Table IA
Demonstration/Service Activities Data
Children

Enter actual performance data for this report period into the appropriate boxes. Use age as of the time of the original application, or the continuation application, whichever is later. On lines above line 11, count multihandicapped individuals only once, by primary handicapping condition, and indicate the number of multihandicapped in line 12. Data for lines 1 through 11 are for those directly served; i.e., services to those enrolled or receiving major services, and not those merely screened, referred or given minimal or occasional services.

Type of Handicap	Number of Handicapped Served by Age					
	Ages 0-2	Ages 3-5	Ages 6-9	Ages 10-12	Ages 13-16	Age 17 and Over
1. Trainable Mentally Retarded						
2. Educable Mentally Retarded						
3. Specific Learning Disabilities				14	81	
4. Deaf-Blind						
5. Deaf/Hard of Hearing						
6. Visually Handicapped						
7. Seriously Emotionally Disturbed						
8. Speech Impaired						
9. Other Health Impaired						
10. Crippled						
11. Total						
12. Multihandicapped						

If the data in the above table differ by more than 10 percent from the data originally presented in your approved application, please explain the difference.

Table IB

Project Staff Providing Services to Recipients in Table IA

Type of Staff	Number	
	Full-time	Part-time *(As Full-time Equivalents)*
Professional Personnel *(excluding teachers)*	9	.4
Teachers	4	
Paraprofessional	1	.8

Table IC

If applicable: Services to Those Handicapped Not Included in Table IA

Service	Number of Handicapped
Screened	(47)
Diagnostic and Evaluative	(20)
Found to Need Special Help	(18)
Other Resource Assistance	(7)

Table II

Preservice/Inservice Training Data

Handicapped Area of Primary Concentration	Number of Persons Received Inservice Training	Number of Students Received Preservice Training by Degree Sought			
		AA	BA	MA	Post-MA
Multihandicapped					
Administration	20				
Early Childhood					
Trainable Mentally Retarded					
Educable Mentally Retarded					
Specific Learning Disabilities	250 - 300		7	10	3
Deaf/Hard of Hearing					
Visually Handicapped					
Seriously Emotionally Disturbed					
Speech Impaired					
Crippled and Other Health Impaired					
TOTAL	320		7	10	3

If data in Table II above differ by more than 10 percent from those in your approved application, explain.

SECTION A

I. RESEARCH AND DEVELOPMENT

A. Accomplishments

The major accomplishment was the production of the Multi-Media Materials Catalogue, which is included in Appendix A. This product is a catalogue of all materials currently available for secondary L. D. students (grades 7 - 12). These materials, both printed and audio-visual in nature, are compiled in the catalogue, with a brief summary and a review of their utility in aiding the secondary L. D. student. These materials are also referenced with suggestions as to appropriate units of study for optimal learning progress. The catalogue also includes a section on professional materials. Here is listed and summarized a wide variety of books, manuscripts, tape series, etc., useful for the continued development of professionals who are working with the learning disabled student. To date, 475 catalogues have been distributed, both across the state and nation.

The second major accomplishment in the area of research and development is the completion of a two-year evaluation design which initially showed reliable gains on both intelligence and achievement tests, and in this past year demonstrated the value of the implementation of innovative services on both cognitive and affective traits of the students serviced by the model project. This data is

reported in full for the second annual evaluation in subsection III, Evaluation.

To summarize the value of the two forms of innovative services chosen in this past year, i.e. Biofeedback and Group Counseling, the following conclusions will be presented. It is important to note here that these conclusions can be considered only tentative at this point, without appropriate cross-validation of the findings.

1. The Alpha band EEG Biofeedback training produced a consistent positive change in mathematical ability, both in grades and in achievement tests scores. This type of training also showed a significant decrease in underlying anxiety. It is hypothesized that the marked anxiety reduction led to increased attention span and concentration which manifested itself in the gains found in Arithmetic. Therefore, it is concluded that Alpha EEG feedback training is indicated for the amelioration of Arithmetic learning disability in secondary students.

2. Beta band EEG Biofeedback training produced marked gains in the level of the students' study habits. Therefore, it is concluded that Beta EEG feedback training is indicated for the enhancement of poor study habits in secondary L. D. students.

3. Group Counseling produced the strongest gains in reading achievement scores. Therefore, it is concluded that the Group Counseling experience is indicated for those students with marked reading disabilities in the secondary grades.

The third major accomplishment was the development of a set of diagnostic and prescriptive forms and guidelines that enable other centers to replicate to a great extent the diagnostic/prescriptive component of this model project.

B. Slippages

There were no slippages in the research and development activities for the Oklahoma CSDC.

II. DEMONSTRATION/SERVICE

A. Accomplishments

The major objective for this grant can appropriately be labeled a demonstration/service objective. The major objective was to develop a prescriptive program for individual learning disabled children which will enable each child to progress successfully in all areas of instruction at a rate consistent with that individual's particular level of ability.

The first component of the model that would insure the accomplishment of this objective is the screening-assessment program of the students.

A total of 96 students were served by the project for the 1974-1975 year. All of these students went through a screening and assessment work-up. Each student was administered a standardized intelligence and achievement test, upon referral to the program. Then for those students admitted to the program, various assessment tools were used to determine individual strengths and weaknesses. Both the cognitive and affective domain were considered in this assessment.

A breakdown of individual tests administered is as follows:

Wechsler Scales (WISC, WISC-R and WAIS).....85
Wide Range Achievement Tests.....292
Durrell Reading Test.....94
I.T.P.A. (Illinois Test of Psycholinguistic Abilities).....15
Roswell Chall Reading.....12
Bond-Balow-Hoyt (Silent Reading).....12
Keystone Visual Survey Tests.....90

The above tests were individually administered; thus the total of individual tests given during this past year was 600.

The following is a breakdown of special tests given to project students relating to the affective domain:

Survey of Study Habits and Attitudes	228
FIRO-B	152
FIRO-F	152
Tennessee Self-Concept Scale	152
Holtzman Inkblot Test	40
Jesness (modified) Behavior Ratings	20
Jesness Behavior Checklist	20

A total of 764 special tests were given during this past year.

This large testing program was not only undertaken to make timely assessments of progress, but also to permit a complete understanding of both the cognitive and affective changes occurring in the program's students.

A second accomplishment was the writing and implementation of timely prescriptions for the students. Staff personnel utilized diagnostic testing, teacher check lists and interviews to tailor each educational prescriptive program to meet the individual needs of each learning disabled student.

A total of 171 prescriptions were written during the past year, which were evaluated biweekly. Modification occurred if the student was not progressing adequately.

B. Slippages

There were no slippages encountered in terms of the program's diagnostic-prescriptive services. While certainly not all

of the students benefited equally, each and every student was given thorough individual attention in aiding him to overcome his disability.

III

PROGRAM EVALUATION

PROGRAM EVALUATION METHODS AND PROCEDURES:

The first annual program evaluation (1973-74) of the Oklahoma Title VI-G Child Service Demonstration Center utilized a design of a comparison of the students in the program (treatment group) with students of similar intelligence who were not in the program (no-treatment control group). For the program's first year of operation, this design was judged to be the most appropriate because it would answer the most basic question i.e., is the program yielding any beneficial effects?

The second annual program evaluation (1974-75) involved a design of a comparison of the program itself (treatment group) with two adjunctive interventions (comparison groups). The present year's design also provided for a during-year sample, in addition to the pre and post samples used in the first year's design. For this second year of operation, the comparative treatment design was judged to be the most efficient plan because it built upon the initial year's evaluation in a systematic fashion to answer a more discerning question, how beneficial is the program in relationship to other forms of intervention?

This comparative treatment design was also chosen to yield information about ways of modifying the program to enhance its effectiveness. The two comparison treatments of group counseling and biofeedback were chosen for the following reasons. Both represented atypical academic intervention strategies, but at the same time their effects could be, at least theoretically, differentiated. Group counseling was aimed at the psychological sequelae, especially lowered self-esteem and acceptance of self, that are associated with a history of academic failure. Biofeedback

was aimed at the remediation of some basic learning difficulties and also an enhancement of self-control. This desired increase in self-control was predicted to provide for greater confidence, which might combat the learning disabled students' powerlessness that is often a concomitant of poor academic achievement.

In addition to the decision to utilize the program treatment group, plus the two comparison adjunctive intervention groups, the strategy involved the following subjects, procedures, instruments and measures.

Subjects

Subjects involved in this program evaluation were all students, from the seventh to the twelfth grade, who had been assessed via a psychoeducational evaluation to be learning disabled. These students were then placed in the learning resource rooms in the four rural/semi-rural school districts of Cushing, Drumright, Ripley and Yale.

A total of 96 students were served directly by the program throughout the year, of which 74 were males and 22 were females. However, not all of this number were included in all of the analyses for various reasons. Six students were placed back in the regular classroom throughout the year; six students moved out of their respective school districts during the school year; and various students were not present on the days when certain types of data were being collected.

Procedures

1. An evaluation meeting was held in early September of 1974

at the media center in Cushing for the purpose of explaining the evaluation design to all project staff, receiving input from all staff concerning their perceptions of the evaluation plan, assigning responsibilities and instructing staff in data collection and scoring skills, and finally coming to a common understanding of an effective timeline for the data collection activities.

2. Meetings were held between the appropriate superintendents/principals and project director/consultants to receive clearance for the specialized adjunctive activities of group counseling and biofeedback.

3. Talks and demonstrations were performed by the project consultants for the purpose of explaining these specialized activities to the students, and to initiate a joint parent-student permission process before any student would be included in the specialized activities.

4. In October, the adjunctive activities were begun. The assignment of subjects to the three options of program alone, group counseling and biofeedback was random, given the following constraints. First, group counseling was scheduled for one session per week for the students in one out of the five active class periods a day. Therefore, it was not intended to give this specialized activity to the number of students who were assigned to the program-alone group. However, group counseling did take place in all four school districts on this basis. Second, biofeedback was intended to be given in only one out of the four towns, to a randomly selected group of ten students.

5. Training, supervision and coordination of the two specialized treatments were the responsibility of two of the project consultants. With regard to counseling, the group counselors were

four graduate practicum students in the counselor training program at Oklahoma State University. Their practicum supervisor was one of the project consultants. He held weekly supervision and coordination meetings with these group counselors. With regard to biofeedback, the biofeedback trainers were five graduate and undergraduate psychology students from Oklahoma State University who had gone through a course of instruction in biofeedback training. Their supervisor was another of the project consultants, who met with this research team once a week as a group, and individually for supervision and coordination.

6. Data collection with standardized psychometric instruments occurred at the end of each of the nine-week grading periods. These testing sessions were scheduled in such a way as to neither tax the students, not interfere with the academic examinations that were scheduled at these times. A delineation of the types of instruments used and their frequency of administration will be discussed in the next section.

7. School grades were secured from the schools' records for all the students in the program by the resource room teacher, and compiled for each of the four grading periods throughout the year.

8. A pre and post test of the Durrell Analysis of Reading Difficulty Test was given to a random sample of 20 students, with the restriction that four males and one female were chosen from each of the four school districts. This administration was for the purpose of gathering more specific information on the types of improvements, if any, that had occurred during the year in the area of reading.

9. The interventions of group counseling and biofeedback

were applied during the middle half of the school year, i.e., the second and third nine weeks marking periods. This timing permitted the first measures taken during the first nine weeks to be used as a pre-treatment sample, and the last measures at the end of the school year to provide a two month follow-up sample.

10. Biofeedback consisted of a total of 15 twenty-minute sessions, with the first five sessions given to feedback of frontalis muscular tension and the last ten sessions for EEG feedback. One half of the Biofeedback group received Alpha training and one half received Beta training.

11. Group Counseling consisted of 50-minute sessions on a schedule of one per week during the middle two marking periods.

INSTRUMENTS AND MEASURES:

School Grades

School grades for each of the four nine week grading periods were collected from the various schools for all the students in the program. Four subjects were examined in this respect. These were English, Mathematics, Science and Social Studies.

Wide Range Achievement Test:

The WRAT was administered to all of the students in the program three different times during the year. All the students took the WRAT at the end of the first nine weeks period and the third nine weeks period. However, to obtain an estimate of achievement changes at equal intervals throughout the year without taxing the students' test-taking capabilities, two of the school districts scheduled their administration at the end of the second nine-weeks period (Ripley and Yale), while the other two school

districts scheduled their third administration at the end of the fourth nine weeks period (Cushing and Drumright).

The administration took place in the students' classroom during the regular class day, as did all the other test administrations. The Spelling and Arithmetic sections were given in group administration, while the Reading section was individually administered to each student. The resource room teachers administered and scored these protocols, with training and supervision from one of the consultants. Three measures were derived from the WRAT; these were the grade levels and percentiles for Reading, Spelling and Arithmetic.

Survey of Study Habits and Attitudes

This standardized questionnaire was given in group administration at the end of the first, third and fourth nine weeks periods. It was included in the evaluation to obtain estimates of both behavioral and attitudinal factors that correlate well with academic achievement, but are not related to intelligence. All questions and the answer options were read to the students by their resource room teacher. Seven measures were derived from the SSHA; percentile scores on Work Methods, Delay Avoidance, Study Habits, Teacher Approval, Education Acceptance, Study Attitudes and Study Orientation.

Tennessee Self Concept Scale

This standardized questionnaire was given to every student in the program, via group administration, in a fashion similar to the administration of the SSHA. Administration of the TSCS occurred twice

during the first nine weeks of the school year and during the last nine weeks (September to April).

The TSCS generates from 34 (Counseling Form) to 43 (Clinical and Research Form) measures. The present evaluation utilized the Counseling Form in Drumright, Ripley and Yale, and the Clinical and Research Form in Cushing. The difference between the two forms is only in the scoring of the same items, with the Clinical and Research Form having additional measures that are derived empirically from different diagnostic norm groups.

Aside from different variability measures and a validity scale, the measures are different subsets of items that fall within three dimensions of self-esteem (Identity, Self-acceptance and Behavior) and five areas of self-esteem (Physical Self, Moral-ethical Self, Personal Self, Family Self and Social Self). While the reliabilities of the subset measures are questionable, the reliability and validity of the Total Positive self-esteem measure is quite high. It correlates well with other indices of one's feelings of self-esteem.

Fundamental Interpersonal Relations Orientation - Behavior:

The FIRO-B is a standardized questionnaire, which was given to every student in the program, via group administration, in the same fashion and on the same schedule as the TSCS.

This questionnaire measures the degree and kind of interpersonal stance of the examinee. It is purported to tap three basic dimensions of interpersonal relations - affection, control and inclusion. The FIRO-B generates six measures; expressed inclusion, expressed control,

expressed affection, wanted inclusion, wanted control and wanted affection. The difference between the expressed and wanted dimensions is that expressed measures the interpersonal signals that one is sending and wanted measures the interpersonal behavior that one desires from others. All of these measures are confined to the behavioral domain.

Fundamental Interpersonal Relations Orientation - Feelings:

The FIRO-F is a standardized questionnaire, which was given to every student in the program, via group administration, in a manner similar to the FIRO-B, and on the same schedule.

This questionnaire is a replica of the FIRO-B in form and theory. The only difference is the content of the questions and confinement of the FIRO-F to the affective domain of interpersonal feelings.

Holtzman Inkblot Test:

This projective test was given, via group administration, by means of a slide projector and screen. The students were to record their first associations to the blots on standard sheets that they were given. This test was given only to the students in the Cushing resource room, as was the case with the TSCS Clinical and Research form. The reason for this was that Cushing was the only district in which biofeedback was being given as a treatment, and further assessment of this innovative intervention was desired.

The HIT was given on the same pre-post schedule as the TSCS, FIRO-B and FIRO-F. Group administration was feasible since the only measures of interest were neither location nor determinant measures.

Four measures were derived from this administration. All four were based on content analyses of the responses to the blots. The four were Anxiety, Hostility, Barrier and Penetration. Some measure of affect at a projective level was desired for the present evaluation, in addition to measures of body image (Barrier and Penetration).

Durrell Analysis of Reading Difficulty Test:

This diagnostic reading test was administered, via individual administration, to a random sample of 20 students in the program. The Durrell was on the same pre-post schedule as the previous four tests. A more detailed look was desired in the changes that took place in the students' reading level. The Durrell yields grade level scores for six separate areas of reading difficulty, in addition to a total reading score. The six areas are Oral Reading, Silent Reading, Visual Memory, Phonetic Spelling, Word Recognition and Word Analysis.

Jesness Behavior Checklist (Observer Form):

This behavior checklist was given to the resource room teacher in Cushing for the reasons discussed in the HIT section above. This checklist was administered only once, at the end of the school year, in a post-test fashion. Since the subjects had been assigned to their respective groups on a random basis, any group differences that occurred on this single administration at the end of the year, could be due only to the difference among the treatments.

Fourteen measures are generated from this checklist. They are considered as bipolar behavioral dimensions, with one end indicating good adjustment and the other end indicating poor adjustment. The measures are:

1. Unobtrusive vs. Obtrusive
2. Friendly vs. Hostile
3. Responsible vs. Irresponsible
4. Considerate vs. Inconsiderate
5. Independent vs. Dependent
6. Rapport vs. Alienation
7. Enthusiasm vs. Depression
8. Sociability vs. Poor Peer Relations
9. Conformity vs. Non-conformity
10. Calmness vs. Anxiety
11. Effective Communication vs. Inarticulate
12. Insight vs. Unawareness and Indecisiveness
13. Social Control vs. Attention Seeking
14. Anger Control vs. Hypersensitivity.

Resource Room Teacher's Student Evaluation:

This was a form constructed by the evaluation consultant to obtain information on every student from his resource room teacher's perspective. Each resource room teacher in the four districts filled out one of these forms at the end of the school year on each of their students. The form requests both qualitative and quantitative information on the student. The qualitative information is a request for the teacher's subjective impressions of the student's work in the resource room, his strengths and weaknesses, his individual style and how it has changed. The quantitative information is a rating of the student's degree of change on a five-point scale in both the academic

and social-emotional areas, since the start of the school year. The five points are labeled worse now, no change, mild improvement, moderate improvement and great improvement.

Prescriptive Teacher's Qualitative Summary:

This was an open ended form to permit the prescriptive teacher to enter her input into the evaluation on the student's individual style and degree of change. The two prescriptive teachers were requested to compose such a summary on each of the students in the two resource rooms that they serviced.

RESULTS:

SCHOOL GRADES

The effects of the program and the adjunctive treatments on the students' grades in Mathematics, Reading, Social Studies and Science were investigated by two separate ANOVAs. Both were mixed designs with one Between Ss variable (Group) and one Within Ss variable (Quarter). Since it was desired to maintain the F test at a robust level without concern for violation of assumption, equal N analyses were computed.

The first ANOVA examined school grade differences among three samples of students representing Biofeedback, Group Counseling and the Program Alone conditions. Only seven subjects were in each sample to keep cell size equal. Tables A through D depict the results of this ANOVA.

Table A shows the results of the year's work on Mathematics grades. This ANOVA yielded a significant main quarter effect, $F(3,54) = 6.10$, $p < .005$. However, there was no reliable differentiation found among the three conditions. The students, independent of treatment, increased from a C grade in the first quarter to a C+ in the second, and then fell to a D+ grade for the two Spring term quarters in Mathematics.

Table B shows the results in English grades. The ANOVA yielded a significant main quarter effect, $F(3,54) = 10.54$, $p < .005$. Again the treatment condition did not provide any reliable variation

TABLE A

MATHEMATICS GRADES BY

QUARTER AND TREATMENT IDENTIFICATION

TREATMENT	N	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
Combined Biofeedback	7	2.01	2.49	1.53	1.47
Group Counseling	7	2.14	2.57	1.53	1.47
Program Alone	7	1.71	1.90	1.34	1.43
TOTAL	21	1.96	2.32	1.47	1.46

ANOVA on above measures yielded a significant quarter effect, $F(3,54) = 6.10$, $p < .005$.

ANOVA on above measures yielded a nonsignificant treatment by quarter interaction effect, $F(6,54) = 0.26$.

TABLE B

ENGLISH GRADES BY QUARTER

AND TREATMENT IDENTIFICATION

TREATMENT	N	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
Combined Biofeedback	7	1.76	2.61	1.43	1.67
Group Counseling	7	1.96	2.76	1.63	1.34
Program Alone	7	1.69	2.14	1.01	1.14
TOTAL	21	1.80	2.51	1.36	1.39

ANOVA on above measures yielded a significant quarter effect, $F(3,54) = 10.54$, $p < .005$.

ANOVA on above measures yielded a nonsignificant treatment by quarter interaction effect, $F(6,54) = 0.32$.

on these grades. The English grades show a stronger increase from the Math grades from the first to the second quarter, from a C- to a strong C+. The decrease from the second quarter to the two Spring quarters is again evident with a drop from the C+ level to a D+ level.

Table C depicts the results of this ANOVA on Social Studies grades. There were no significant main or interaction effects here, but the pattern for Math and English grades is present in a weaker form. Students increased from a C- to a weak C+, back down to a C- in the third quarter, and a C-/D+ on the final quarter.

Table D provides the data of the ANOVA on Science grades. A significant main quarter effect was found, $F(3,54) = 5.59$, $p < .005$. No treatment condition variation was discovered. Essentially the same above pattern was shown on Science grades: C- to C+ to D+ to D+.

The second ANOVA examined school grades on a second independent sample of students who were in the Group Counseling and Program Alone conditions, since these conditions involved more students than the Biofeedback conditions. Also the cell size was increased from 7 to 18 students. This increased cell size augmented the power of the F test such that in this ANOVA, all four curriculum areas yielded significant main quarter effects. Therefore, Social Studies did show a significant quarter effect here, unlike the previous smaller sample ANOVA. Also, no differentiation was found between the treatment conditions in this larger sample.

For Mathematics grades, the main quarter effect yielded a $F(3,102)$ of 15.54, $p < .005$. English grades showed a significant

TABLE C

SOCIAL STUDIES GRADES BY QUARTER

AND TREATMENT IDENTIFICATION

TREATMENT	N	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
Combined Biofeedback	7	1.97	2.43	1.81	1.81
Group Counseling	7	2.00	2.10	1.67	1.58
Program Alone	7	1.34	2.14	1.77	1.57
TOTAL	21	1.77	2.22	1.75	1.66

ANOVA on above measures yielded a nonsignificant quarter effect, $F(3,54) = 2.08$.

ANOVA on above measures yielded a nonsignificant treatment by quarter interaction effect, $F(6,54) = 0.37$.

TABLE D

SCIENCE GRADES BY QUARTER

AND TREATMENT IDENTIFICATION

TREATMENT	N	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
Combined Biofeedback	7	1.76	2.34	1.43	1.76
Group Counseling	7	1.90	2.44	1.49	1.63
Program Alone	7	1.71	2.25	1.34	1.37
TOTAL	21	1.79	2.35	1.42	1.59

ANOVA on above measures yielded a significant quarter effect, $F(3,54) = 5.59$, $p < .005$.

ANOVA on above measures yielded a nonsignificant treatment by quarter interaction effect, $F(6,54) = 0.08$.

main quarter effect with a F (3,102) at 12.54, $p < .005$. Social Studies, in this ANOVA, yielded a significant main quarter effect, F (3,102) = 5.08, $p < .005$. Finally, Science grades show significant variation across quarters, F (3,102) = 10.08, $p < .005$. The same pattern present in the first ANOVA existed again for this ANOVA in all four areas.

In summary, these results provide strong evidence based upon similar patterns in all four areas in two independent samples, that the pattern found for these grades is characteristic of the students' progress in grades during the year. The program's benefit is seen in increasing the students' grades from a C- to a C+ level for the first to second quarter. This C- grade is even surprisingly high given the history of academic failure for these students, but it is important to point out that many of these students had the advantage of the program's beneficial effects during the previous academic year. However, the decrement of close to a full grade from a C+ to a D+ level (average decrease for second quarter to third and fourth quarters = -.84 on a 4.0 scale) is important information in understanding the effect of the program upon these students.

A simple explanation based upon seasonal variation is countered by the fact that the third and fourth quarters showed essentially the same decrement from the second quarter. Since the third quarter is more wintry and the fourth quarter more spring-like, a seasonal explanation is untenable. Another explanation of the results will be presented in the Discussion section.

Wide Range Achievement Test:

The effects of the program and the adjunctive treatments on the Wide Range Achievement Test were investigated through three separate ANOVAs on each of the measures of Reading, Spelling and Arithmetic percentile scores. All three ANOVAs were a mixed design with one Between-Ss variable (Group) and one Within-Ss variable (Quarter). The three differ on the levels of the Group variable and the levels of the Quarter variable. Equal N analyses were used for the same rationale presented in the previous section on Grades.

The first ANOVA was restricted to students in Cushing and Drumright to permit a comparison of students in the program and the adjunctive treatments for the quarters in which they were tested, i.e., the first, third and fourth quarters.

Table E depicts the results of the first ANOVA in the three measures of Reading, Spelling and Arithmetic achievement percentile scores. For Reading, a significant main Quarter effect was found, $F(2,42) = 3.61$, $<.05$. However, no differentiation of Reading scores was found among the groups. For both Spelling and Arithmetic achievement score, no main nor interaction effects were found in this ANOVA. The main Quarter effect for Reading percentiles showed a steady increase from the first to the third, and from the third to the fourth quarter.

Table F shows the results of the second ANOVA. Here only students in Ripley and Yale were included because only these students took the WRAT in the first, second and third quarters. Also, the biofeedback treatment was not given to students in either of these towns;

TABLE E

WIDE RANGE ACHIEVEMENT TEST

PERCENTILE SCORES

CUSHING AND DRUMRIGHT

GROUP	N	FIRST QUARTER	THIRD QUARTER	FOURTH QUARTER
READING				
Alpha Biofeedback	4	3.25	4.00	3.75
Beta Biofeedback	4	32.25	31.00	34.50
Group Counseling	8	17.13	21.38	22.38
Program Alone	8	7.25	9.88	15.38
TOTAL	24	14.04	16.25	18.96 *
SPELLING				
Alpha Biofeedback	4	1.25	2.25	2.00
Beta Biofeedback	4	8.00	9.75	9.00
Group Counseling	8	12.13	9.75	11.25
Program Alone	8	3.00	3.88	4.50
TOTAL	24	6.58	6.54	7.08
ARITHMETIC				
Alpha Biofeedback	4	8.5	11.5	14.25
Beta Biofeedback	4	18.25	15.0	9.25
Group Counseling	8	12.63	13.13	13.00
Program Alone	8	9.63	10.00	10.13
TOTAL	24	11.88	12.13	11.63

* = $p < .05$

TABLE F

WIDE RANGE ACHIEVEMENT TEST

PERCENTILE SCORES

RIPLEY AND YALE

GROUP	N	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER
READING				
Group Counseling	11	9.82	11.64	18.00
Program Alone	11	12.82	18.09	21.64
TOTAL	22	11.32	14.86	19.82 ***
SPELLING				
Group Counseling	11	4.46	10.73	9.46
Program Alone	11	5.00	8.82	10.73
TOTAL	22	4.73	9.77	10.09 **
ARITHMETIC				
Group Counseling	11	10.46	9.82	16.00
Program Alone	11	7.73	8.27	9.27
TOTAL	22	9.09	9.05	12.64 *

* = $p < .07$; ** = $p < .025$; *** = $p < .01$.

therefore, only Group Counseling and Program Alone conditions are represented in this ANOVA.

For Reading percentile scores, a significant main Quarter effect was found, $F(2,40) = 5.99$, $p < .01$. Again, no group differentiation was discovered. The Reading percentile scores showed a 3.54 increase from the first to the second quarter, and a 4.96 increment from the second to the third quarter.

For Spelling, a significant Quarter effect yielded an $F(2,40)$ of 4.24, $p < .025$. No group differentiation was shown. Here the large increment came between the first and the second quarters with a 5.04 percentile change; between the second and third quarters, a 0.32 percentile increase was found.

In the area of Arithmetic achievement, again a significant Quarter effect, $F(2.40) = 3.03$, $p < .07$, and no group differentiation was found. Here from the first to the second quarters, a slight decrement was shown of 0.04 percentiles; then a large increment of 3.59 percentile was found between the second and third quarters.

The third ANOVA was performed on samples of 23 students each in Group Counseling and Program Alone conditions among all four towns across only the first and third quarters. Since all students took the WRAT at these times and the most representative examination of these achievement test scores was desired, this ANOVA was computed. Biofeedback was not included because of the insufficient number of students who engaged in that treatment.

Table G presents the results of this ANOVA in terms of

TABLE G

WIDE RANGE ACHIEVEMENT TEST

GRADE LEVEL SCORES

GROUP	N	FIRST QUARTER	THIRD QUARTER	CHANGE SCORE	RATE OF ADVANCEMENT
READING					
Group Counseling	23	4.05	4.90	+ 0.85	2.27 years
Program Alone	23	4.05	4.60	+ 0.55	1.47 years
TOTAL	46	4.05	4.70	+ 0.65***	1.73 years
SPELLING					
Group Counseling	23	3.5	4.0	+ 0.5	1.33 years
Program Alone	23	3.3	3.6	+ 0.3	0.80 years
TOTAL	46	3.4	3.8	+ 0.4*	1.07 years
ARITHMETIC					
Group Counseling	23	4.0	4.4	+ 0.4	1.07 years
Program Alone	23	3.8	4.05	+ 0.25	0.67 years
TOTAL	23	3.9	4.2	+ 0.30**	0.80 years

Rate of advancement = Grade Level Change/Time ($4\frac{1}{2}$ months)

* = $p < .10$; ** = $p < .01$; *** = $p < .005$.

Grade Levels. The ANOVA was computed on percentile scores with the conversion to grade levels being made following the computation of the ANOVA for the purpose of presenting the results in the most informative fashion.

Since these change scores are based on the difference between the first and third quarters, or 4½ months time, a Rate of Advancement index was included to show the progress predicted upon a full year between test administrations.

For Reading, the ANOVA yielded a significant F (1,44) of 10.99, $p < .005$, on the main Quarter effect; no group differentiation was found. An average of 1.73 years advancement was made by these students in reading achievement.

For Spelling, the ANOVA showed a significant main quarter effect, F (1,44) = 3.61, $p < .10$, and again no differentiation between Group Counseling and the Program Alone conditions. An average of 1.07 years advancement was made by this sample in Spelling achievement.

The results on the WRAT demonstrate several findings. First, Reading showed the strongest advancement, with all ANOVAs yielding strong F values. Spelling appeared to be the next strongest area with Arithmetic close to it in proven advancement. Second, no differentation among groups proved significant. However, certain trends were present that indicate a great deal of individual variability existed that obscured these trends. A future goal of the Oklahoma CSDC will be to discriminate the factors that predict success in

these adjunctive treatments to discover if prior selection of students for these specialized activities will produce greater advancement in the different achievement areas.

To examine more closely these trends among the different conditions, an inspection of the tabled means is necessary. Table E shows that, in Reading, Group Counseling showed the best gain for the first to the third quarter, and continued to increase slightly from the third to fourth quarter after the cessation of the treatment. Program Alone showed a fair increase from the first to the third quarter, and the strongest increase of the four groups from the third to fourth quarter. The two biofeedback groups fared the worst, with alpha showing a slight increase from the first to the third quarters, and an even slighter decrease with the cessation of the treatment on the fourth quarter. Beta training was the only group to produce a decrease from the first to the third quarter, with a slight increase from the third to the fourth quarters. One interpretation might be that the training actually decreased their reading ability, restraining the influence of the program's beneficial effects until the treatment period ended when the reading ability showed a fair increase.

In Spelling, the above ordering of effects are almost completely reversed. Beta training here produced the greatest increase from the first to the third quarters, with a decrease from the third to the fourth that produced a level above the first quarter. This showed the specificity of the positive effect. Alpha produced the

next greatest increase from the first to the third quarter with a slight decrease from the third to the fourth quarters. The Program Alone showed the third greatest increase from the first to third quarters, but unlike the two biofeedback groups showed a continuing increase from the third to the fourth quarters. Group Counseling produced the poorest changes with a decrease from the first to the third quarters, and an increase from the third to the fourth quarter that did not reach the first quarter's level.

In Arithmetic, Alpha Biofeedback was the only positive group, with equal increments from the first to the third and the third to the fourth quarters, yielding a total increment from first to fourth quarters of 5.75 percentile points. Both Group Counseling and Program Alone produced negligible changes across quarter, and Beta training showed a marked decrement across the quarters.

Also Table G showed on each of the three achievement areas, and especially in Reading, that Group Counseling produced greater positive increments from the first to the third quarters than Program Alone.

In summary, the examination of these admittedly nonsignificant trends point to the following tentative conclusions:

1. Group Counseling is especially recommended for enhancing Reading achievement scores, when used adjunctively in a diagnostic-prescriptive model.

2. Beta EEG biofeedback training is recommended for enhancing

Spelling achievement scores, when used adjunctively in a diagnostic-prescriptive model; at the same time, it is contraindicated in remediating Reading problems and strongly contraindicated in the remediation of Arithmetic problems.

3. Alpha EEG biofeedback is especially recommended in the remediation of Arithmetic deficits, when used adjunctively in a diagnostic-prescriptive model.

4. The above conclusions would be strengthened by the selection of students with characteristics predictive of especial success in these adjunctive treatments.

Survey of Study Habits and Attitudes:

The effects of the program and the adjunctive treatments on The Survey of Study Habits and Attitudes (SSHA) were examined through two separate ANOVAs on each of the measures of Delay Avoidance, Work Methods, Study Habits, Teacher Approval, Education Acceptance, Study Attitudes and Study Orientation. Both ANOVAs used a mixed design with one Between-Ss variable (Group) and one Within-Ss variable (Quarters). The two differed on the levels of the Group variable; both ANOVAs contained three levels of the Quarters variable - the first, third and fourth quarters. Equal N analyses were used as with the other instruments.

The first ANOVA had four levels of the Group variable; Alpha

Biofeedback, Beta Biofeedback, Group Counseling and Program Alone. Only one effect on one measure proved significant, and at a marginal level. The main effect of Quarters yielded an F (2,24) of 2.54, p .10, on Teacher Approval. First quarter mean was 18.0 percentile; third quarter was 19.94 and the fourth quarter was 29.44 percentile. Therefore, the attitude of approval of teachers showed positive gains throughout the year.

The second ANOVA had two levels of the Group variable; Group Counseling and Program Alone with 14 subjects per group rather than four. However, there were no significant main nor interaction effects found on the seven different measured in the ANOVA.

Tables H, I and J present the findings on the SSHA measures of Study Habits, Study Attitudes and Study Orientation, respectively, by the three quarters sampled. The different Quarter means are shown by the treatment conditions. Since none of these data represent significant differentiation by Group or Quarter, an examination of these findings will permit an investigation of the trends.

Table H depicts the percentile scores on Study Habits. Only Beta Biofeedback showed positive gains across the three quarters. Alpha training gave the next best showing with a slight decrease from the first to the third quarter and a greater decrease from the third to the fourth quarters. Both Group Counseling and Program Alone showed strong and approximately equal decrements across the quarters in Study Habits.

TABLE H

SURVEY OF STUDY HABITS AND ATTITUDES

STUDY HABITS

PERCENTILE SCORES

TREATMENT	N	FIRST QUARTER	THIRD QUARTER	FOURTH QUARTER
Combined Biofeedback	8	14.38	18.63	17.38
Alpha Biofeedback	4	17.75	17	14.75
Beta Biofeedback	4	11	20.25	20.00
Group Counseling	17	29.76	24.06	16.12
Program Alone	27	35.74	28.33	22.70
TOTAL	52	30.50	25.44	19.73

Table I depicts the percentile scores on Study Attitudes. Both biofeedback groups fared well, while the other two groups did poorly. Alpha training showed a slight increment from the first to the Third Quarter, and a very strong increase from the third to the fourth quarter. Beta training yielded a strong increment from the first to the third quarters, and a decrease from the third to the fourth quarters that dropped to a level midway between the first and third quarters. Both Group Counseling and the Program Alone showed the following similar pattern of equal magnitude. The change from the first to the third quarter was a marked decrease, and from the third to the fourth quarter, there was a slight decrease.

Table J presents the percentile scores on Study Orientation. For this total composite measure of Study Habits and Attitudes, the biofeedback groups fared the best. Beta training yielded the strongest pattern, with a marked increment from the first to the third quarters and a slight decrement from the third to the fourth quarters. Alpha trained showed only a negligible gain from the first to the third quarters and a strong increment from the third to the fourth quarters. Both Group Counseling and Program Alone showed very similar patterns of approximately equal magnitude. A marked decrement from the first to the third quarters was followed by a fair decrement from the third to the fourth quarters.

In summary, the examination of these nonsignificant trends provide the following tentative conclusions:

TABLE I

SURVEY OF STUDY HABITS AND ATTITUDES

STUDY ATTITUDES

PERCENTILE SCORES

TREATMENT	N	FIRST QUARTER	THIRD QUARTER	FOURTH QUARTER
Combined Biofeedback	8	9.13	14.5	18
Alpha Biofeedback	4	10.5	12.75	23.5
Beta Biofeedback	4	7.75	16.25	12.5
Group Counseling	17	27.88	17.59	19.12
Program Alone	27	31.93	21.74	22.26
TOTAL	52	27.10	19.27	20.58

TABLE J

SURVEY OF STUDY HABITS AND ATTITUDES

STUDY ORIENTATION

PERCENTILE SCORES

TREATMENT	N	FIRST QUARTER	THIRD QUARTER	FOURTH QUARTER
Combined Biofeedback	8	11.76	16.57	17.69
Alpha Biofeedback	4	14.13	14.88	19.13
Beta Biofeedback	4	9.38	18.25	16.25
Group Counseling	17	28.82	20.83	17.62
Program Alone	27	33.84	25.04	22.48
TOTAL	52	28.8	22.36	20.16

1. Beta EEG biofeedback training is recommended for aiding in problems of both poor study habits and study attitudes.

2. Alpha EEG biofeedback training is recommended for aiding in problems of poor study attitudes.

3. Group Counseling is contraindicated for the enhancement of both poor study habits and poor study attitudes.

4. The diagnostic-prescriptive model without aid of helpful adjunctive treatments is not effective in enhancing the study habits and study attitudes in the adolescent L. D. student.

Tennessee Self Concept Scale: Clinical and Research Form

For this form of the Tennessee Self Concept Scale (TSCS), the effects of Biofeedback and either Group Counseling or Program Alone were investigated through one ANOVA on 22 measures of self-esteem. This ANOVA was a mixed design, one Between-Ss variable (two groups) and one Within-Ss variable (Pre-Test and Post-Test). The two groups were Biofeedback with 9 Ss, and Program plus Group with 9 Ss; all Ss were restricted to participation in the Cushing resource room. Also a series of planned t tests were computed on Total Positive Self-Esteem (TP).

To enhance the flow of this section, only significant effects with a Time component will be presented below, since it is only these effects which are important to the evaluation.

The ANOVA yielded a significant main time effect and no

interaction effect on the True-False Ration. An F (1,16) of 9.14, p .01, was based upon a pre-test score of 1.51 to a post-test score of 3.81. This indicates that all subjects, without regard to treatment, were much more likely to answer true rather than false on the post-test. Therefore, the students change in their mode of self definition from a relatively balanced mode of affirming what they are and rejecting what they are not, to an almost exclusive mode of only affirming what they are.

The ANOVA yielded a significant main Time effect and no interaction effect on the Total Conflict measure. An F (1,16) of 8.65, p .01, was based upon a pre-test score of 43.2 and a post-test score of 35.5. This effect indicates that all students, independent of the treatment condition, changed from a state of relative confusion and conflict in their self perception to a state of relative clarity in their self perceptions.

The ANOVA yielded a significant main Time effect and no interaction effect on the ROW Variability measure. An F (1,16) of 8.64, p .01, was based upon a pre-test score of 21.06 and a post-test score of 16.56. This effect indicates a change toward greater consistence among the self-esteem dimensions of identity, self-acceptance and behavior.

There were no other important significant effects shown by this ANOVA on the measures of the clinical and research form of the TSCS. However, it is informative to examine the patterns of self-esteem changes in these two groups for the three dimensions of self-

TABLE K

TENNESSEE SELF CONCEPT SCALE PRE-POST SCORES IN TOTAL POSITIVE SELF-ESTEEM

Group	N	Post-Pre $\bar{X}$	S. D.
Alpha Biofeedback	5	+11.00	25.31
Beta Biofeedback	4	- 9.75	18.94
Combined Biofeedback	9	+ 1.78	27.64
Group Counseling	19	- 1.79	29.24
Program Alone	31	+ 6.52	26.75

Tested Comparison	t value	df	alpha level
$\bar{X}_{alpha} - \bar{X}_{beta}$	+1.36	7	ns
$\bar{X}_{alpha} - \bar{X}_{group}$	+0.89	22	ns
$\bar{X}_{alpha} - \bar{X}_{program}$	+0.35	34	ns
$\bar{X}_{beta} - \bar{X}_{group}$	-0.52	21	ns
$\bar{X}_{beta} - \bar{X}_{program}$	-1.17	33	ns
$\bar{X}_{biofeedback} - \bar{X}_{group}$	+0.31	24	ns
$\bar{X}_{biofeedback} - \bar{X}_{program}$	-0.47	36	ns
$\bar{X}_{group} - \bar{X}_{program}$	-1.03	48	ns

esteem and the five areas of self-esteem.

For the dimension of Self Identity, both groups showed slight increases in their feelings of identity. On the dimension of self-acceptance, Biofeedback increased while the Counseling/ Program group decreased in their degree of self-acceptance. Finally with regard to the dimension of esteem for one's behavior, both groups decreased over time.

In the five areas of self-esteem, the following nonsignificant changes occurred. In esteem for one's Physical Self, Biofeedback did not change and the Counseling/Program group decreased slightly. In esteem for the Moral-Ethical Self, both groups increased. In esteem for Personal Self, both groups showed negligible increments. In esteem for Family Self, both groups decreased slightly. In esteem for Social Self, both groups did not change.

Table K depicts TSCS Pre-Post Change Scores in Total Positive Self Esteem for the different groups and also the results of a set of planned t-tests. This shows no differentiation among the treatment groups in their total self-esteem scores.

In summary, independent of treatment, the students throughout the year became less conflicted in their self-definition and more integrated in their feelings of esteem for their identity, self-acceptance and behavior. They also grew to prefer a more middle-of-the road description of themselves based upon exclusive self affirmatives, over a more extreme self description where yea saying was balanced with nay saying.

Also there were slight trends in the differentiation between Biofeedback subjects and the other subjects such that Biofeedback produced increased self-acceptance and no change in esteem for one's Physical Self, while the Counseling/Program subjects decreased in their feelings of self-acceptance and also in their esteem for their Physical Self.

Tennessee Self Concept Scale: Counseling Form

For this form of TSCS, the effects of Group Counseling and the Program Alone conditions were investigated through one ANOVA on 14 measures of self-esteem. This ANOVA was a mixed design, one Between-Ss variable (two groups) and one Within-Ss variable (Pre-Test and Post-Test). The two groups were Group Counseling and the Program Alone, both with 19 subjects each.

Only significant effects with a Time Component will be presented below, since only these effects are important to the evaluation.

The ANOVA yielded a significant main Time effect and no interaction effects on esteem for one's Personal Self. An $F(1,36)$ of 3.47, $p < .08$, was based upon a pre-test score of 58.08 and a post-test score of 62.74, showing an increase in feeling of personal worth throughout the year. Both groups showed increments in personal worth, with the program showing a greater nonsignificant gain over the Group Counseling gain.

The ANOVA also yielded a significant Group by Time interaction effect on esteem for one's Family Self. An $F(1,36)$ of 3.14, $p < .09$,

was based upon the following sets of scores. Program Alone subjects showed a gain in esteem for themselves as family members with a Pre-Test score of 57.42 and a Post-Test score of 64.32. Group Counseling subjects showed the opposite pattern, with a loss in esteem for themselves as family members with a Pre-Test of 62.11 and a Post-Test of 59.84.

The ANOVA produced a significant main Time effect and no interaction effect on one's esteem for their Social Self. An F (1,36) of 3.23, $p < .09$, was based upon a Pre-Test score of 58.39 and a Post-Test score of 61.55, showing an increase in feelings of worth in relationship to other peers. Both groups showed this gain in social worth with the Program's gain being nonsignificantly greater than Group Counseling's gain.

An examination of the trends that differentiated the two groups will be presented below, with the caution that these differences are based on nonsignificant findings.

In Self Identity, both groups showed gains in the feelings of enhanced identity; in self acceptance the Program Alone showed a slight gain, while the Group Counseling showed a slight loss. In esteem for one's behavior, the Program showed a marked loss while the Group Counseling showed a negligible loss.

In terms of the different areas of self-esteem, the following trends were noted. Program Alone produced an increase in esteem for one's Physical Self while Group Counseling showed no

change. In esteem for one's morals and ethics, Program increased and Group Counseling fell slightly in this esteem area. It was shown above that in one's esteem for his Personal Self, both groups increased, with the Program's increment being the stronger of the two groups. The significant interaction on Family Self between the two groups was presented above, along with the two groups' differential trend in esteem for one's Social Self.

In summary, independent of treatment, the students increased in their feelings of worth for themselves as individual persons and in their esteem for themselves as social persons in their interaction with others. Also those students in the Program Alone condition increased in worth as family members, while the Group Counseling produced lowered feelings of worth as family members.

Summing up the non-significant trends for the two groups, students who participated in the Program Alone showed gains in feelings of self-identity and self-acceptance, but a marked loss in their esteem for their behavior. The Program Alone students also showed gains in their esteem for their bodies, and their morals and ethics; these students also increased in their felt worth as individuals, family members and social persons.

Students who adjunctively participated in Group Counseling showed gains in their self identity, but slight losses in self acceptance and esteem for their behavior. Also Group Counseling stu-

dents showed gains in their felt worth as individuals and social persons, no change in their esteem for their bodies, and lowered esteem for their family status and their own morals and ethics.

Fundamental Interpersonal Relations Orientation - Behavior and Feelings:

The effects of the program and the adjunctive treatments on their FIRO-B and FIRO-F tests were investigated by two separate ANOVAs. Both were mixed designs with one Between-Ss variable (Group) and one Within-Ss variable (Pre-Test and Post-Test). Equal N analyses were computed. Also sets of planned t tests were computed on the FIRO-B measures. Each ANOVA was computed on the six FIRO-B measures and the six FIRO-F measures: expressed Inclusion (eI), wanted Inclusion (wI), Expressed Control (eC), wanted Control (wC), expressed Affection (eA) and wanted Affection (wA).

The first ANOVA examined FIRO-B and FIRO-F differences among four samples of students representing Alpha EEG Biofeedback, Beta EEG Biofeedback, Group Counseling and Program Alone conditions. Only four subjects were in each sample to keep cell size equal.

Table L presents the results of this ANOVA on both FIRO-B and FIRO-F scores and shows the significant effects, if any, found on each of the twelve measures analyzed, with their associated F values,

TABLE L

ANOVAS ON FIRO-B AND FIRO-F SCORES

BY GROUP AND TIME

MEASURE	SIGNIFICANT EFFECT	p value	F	df
FIRO-B/eI	Group	.05	3.68	3 and 12
FIRO-B/wI	None	-	-	-
FIRO-B/eC	Time	.07	4.32	1 and 12
FIRO-B/wC	None	-	-	-
FIRO-B/eA	Time	.05	5.71	1 and 12
FIRO-B/wA	Time	.025	6.88	1 and 12
FIRO-F/eI	Time	.025	7.39	1 and 12
FIRO-F/wI	None	-	-	-
FIRO-F/eC	Time	.05	5.34	1 and 12
FIRO-F/wC	None	-	-	-
FIRO-F/eA	None	-	-	-
FIRO-F/wA	Time	.10	3.57	1 and 12

p values and degrees of freedom. Table M depicts the mean values that correspond to the significant main Time effects presented in Table L. This Table only presents the means for the Time effects because these are the effects important for the program evaluation. These two tables together show the effects of participation in the program for the year, independent of treatment, on the FIRO-B and FIRO-F measures that showed significant changes.

The students showed a significant decrease in the degree of their expressed control on the FIRO-B. They behaved in a manner at the end of the year that indicated a reduced degree of interpersonal control.

On the affection dimension, behaviorally the students not only expressed greater warmth to others, but they also wanted relationships with greater warmth and intensity.

Therefore, in the behavioral realm, the students changed throughout the year by expressing greater interpersonal dependence and greater interpersonal warmth, and at the same time wanting others to deal with them in a more affectionate manner.

On the level of feelings, not behavior, the students showed significant increases in expressed inclusion, expressed control and wanted affection. They felt more extroverted in their dealings with people. They also felt that they were gaining in their degree of interpersonal control, becoming interpersonally more independent. Also, their inner feelings showed a desire for greater warmth in their relationships.

TABLE M

MEANS CORRESPONDING TO SIGNIFICANT TIME EFFECTS IN FIRO-B AND FIRO-F ANOVAS

MEASURE	PRE-TEST	POST-TEST	CHANGE
FIRO-B/eC	2.31	1.56	- 0.75
FIRO-B/eA	1.94	3.19	+ 1.25
FIRO-B/wA	1.63	3.56	+ 1.93
FIRO-F/eI	1.75	3.06	+ 1.31
FIRO-F/eC	1.81	3.00	+ 1.19
FIRO-F/wA	4.13	5.56	+ 1.43

To summarize the findings of this ANOVA in its significant effects, an inspection of the changes on the three interpersonal dimensions of inclusion (introversion-extroversion), control (dependence-independence) and affection (distance-closeness) yields the following conclusions:

1. On the dimension of inclusion, while the students' inner feelings showed a movement toward a more extroverted stance, their external actions have not yet changed in this direction.

2. On the dimension of control, while their inner feelings showed a trend toward expressing greater interpersonal independence, their external behavior showed an opposite trend towards a more dependent stance.

3. On the affection dimension, a more congruent picture emerges both in their inner feelings and in their external actions of a desired greater closeness with people. Both of these changes led to a greater degree of expressed warmth.

The second ANOVA and the sets of planned t tests were performed to detect any differentiation among conditions on the different interpersonal stance measures.

The second ANOVA examined FIRO-B and FIRO-F differences on a larger sample of Group Counseling and Program Alone subjects. Each sample contained 18 students. The ANOVA yielded only one significant effect, the main Time effect on FIRO-B measure of expressed control. An F at 9.70 (1,34), $p < .005$, was based upon a Pre-Test score of 2.89

and a Post-Test score of 1.81, showing a significant decrease in expressed control for both groups. This finding is congruent with the other ANOVA reported above.

Tables N, O and P present the results of the sets of planned t tests on the FIRO-B Pre-Post Change scores in inclusion (Table N), Control (Table O) and affection (Table P).

Table N shows that the differences in mean pre-post changes for both expressed and wanted inclusion among the four groups produced only one significant comparison. Program above showed a significant difference in wanted inclusion from the Group Counseling's condition. Program increased and Group Counseling decreased in their desired inclusion.

Table O shows no significant differentiation among groups in their expressed control. However, there were three significant comparisons on the measure of wanted control. Alpha Biofeedback was significantly different from the other three groups. Alpha training produced an increase in the degree of wanted control, while Beta training, Group Counseling and Program Alone conditions all produced decreases in the desire for wanted control. Integrating the findings for both expressed and wanted control measures, Alpha training apparently has yielded a strong effect in giving up of interpersonal control and a movement towards greater interpersonal dependence at the behavioral level.

Table P shows no significant differentiation in either expressed or wanted affection scores among the four groups. Again in

TABLE N

FIRO-B PRE-POST SCORES

ON THE INCLUSION DIMENSION

EXPRESSED INCLUSION

Group	N	X	S. D.
Alpha Biofeedback	5	+1.4	1.63
Beta Biofeedback	4	0	2.45
Group Counseling	20	+ .90	1.84
Program Alone	32	+ .84	2.21

Tested Comparison	t value	df	alpha level
$\bar{X}_{alpha} - \bar{X}_{beta}$	1.03	7	ns
$\bar{X}_{alpha} - \bar{X}_{group}$	+0.56	23	ns
$\bar{X}_{alpha} - \bar{X}_{program}$	+0.54	35	ns
$\bar{X}_{beta} - \bar{X}_{group}$	-0.85	22	ns
$\bar{X}_{beta} - \bar{X}_{program}$	-0.71	34	ns
$\bar{X}_{group} - \bar{X}_{program}$	+0.10	50	ns

WANTED INCLUSION

Group	N	X	S. D.
Alpha Biofeedback	5	-1.2	1.69
Beta Biofeedback	4	+1.25	4.99
Group Counseling	20	-0.75	2.09
Program Alone	32	+0.69	3.28

Tested Comparison	t value	df	alpha level
$\bar{X}_{alpha} - \bar{X}_{beta}$	1.04	7	ns
$\bar{X}_{alpha} - \bar{X}_{group}$	-0.45	23	ns
$\bar{X}_{alpha} - \bar{X}_{program}$	-1.25	35	ns
$\bar{X}_{alpha} - \bar{X}_{group}$	+1.36	22	ns
$\bar{X}_{beta} - \bar{X}_{program}$	+0.45	34	ns
$\bar{X}_{group} - \bar{X}_{program}$	-1.75	50	p .05 (1 tail)

TABLE O

FIRO-B PRE-POST SCORES

ON THE CONTROL DIMENSIONS

EXPRESSED CONTROL

Group	N	$\bar{X}$	S. D.
Alpha Biofeedback	5	-1.0	1.41
Beta Biofeedback	4	-1.25	0.83
Group Counseling	20	-1.0	2.03
Program Alone	32	- .09	2.43

Tested Comparison	t value	df	alpha level
$\bar{X}$alpha -$\bar{X}_{beta}$	+0.31	7	ns
$\bar{X}$alpha -$\bar{X}_{group}$	0	23	ns
$\bar{X}$alpha -$\bar{X}_{program}$	- .81	35	ns
$\bar{X}$beta -$\bar{X}_{group}$	-0.24	22	ns
$\bar{X}$beta -$\bar{X}_{program}$	-0.94	34	ns
$\bar{X}$group -$\bar{X}_{program}$	-1.40	50	ns

WANTED CONTROL

Group	N	$\bar{X}$	S. D.
Alpha Biofeedback	5	+2.8	3.31
Beta Biofeedback	4	-1.75	2.59
Group Counseling	20	-0.70	2.26
Program Alone	32	-0.75	2.82

Tested Comparison	t value	df	alpha level
$\bar{X}$alpha -$\bar{X}_{beta}$	+2.25	7	p .10 (2 tail)
$\bar{X}$alpha -$\bar{X}_{group}$	+2.82	23	p .01 (2 tail)
$\bar{X}$alpha -$\bar{X}_{program}$	+2.57	35	p .02 (2 tail)
$\bar{X}$alpha -$\bar{X}_{group}$	-0.83	22	ns
$\bar{X}$beta -$\bar{X}_{program}$	-0.67	34	ns
$\bar{X}$group -$\bar{X}_{program}$	+0.09	50	ns

TABLE P

FIRO-B PRE-POST SCORES

ON THE AFFECTION DIMENSION

EXPRESSED AFFECTION

Group	N	$\bar{X}$	S. D.
Alpha Biofeedback	5	-0.20	1.60
Beta Biofeedback	4	+1.50	0.87
Group Counseling	20	+0.20	1.75
Program Alone	32	-0.03	2.22

Tested Comparison	t value	df	alpha level
$\bar{X}_{alpha} - \bar{X}_{beta}$	-0.39	7	ns
$\bar{X}_{alpha} - \bar{X}_{group}$	-0.46	23	ns
$\bar{X}_{alpha} - \bar{X}_{program}$	-0.16	35	ns
$\bar{X}_{beta} - \bar{X}_{group}$	+1.43	22	ns
$\bar{X}_{beta} - \bar{X}_{program}$	+1.34	34	ns
$\bar{X}_{group} - \bar{X}_{program}$	+0.39	50	ns

WANTED AFFECTION

Group	N	$\bar{X}$	S. D.
Alpha Biofeedback	5	+0.20	1.94
Beta Biofeedback	4	-0.75	2.17
Group Counseling	20	+0.15	1.91
Program Alone	32	+0.41	2.13

Tested Comparison	t value	df	alpha level
$\bar{X}_{alpha} - \bar{X}_{beta}$	+0.70	7	ns
$\bar{X}_{alpha} - \bar{X}_{group}$	+0.05	23	ns
$\bar{X}_{alpha} - \bar{X}_{program}$	-0.21	35	ns
$\bar{X}_{beta} - \bar{X}_{group}$	-0.85	22	ns
$\bar{X}_{beta} - \bar{X}_{program}$	-1.02	34	ns
$\bar{X}_{group} - \bar{X}_{program}$	-0.45	50	ns

the above ANOVA, both these measures showed a significant increment across groups, but there were no differences among the groups in this change in interpersonal warmth.

Table Q presents the four groups' Pre-Test, Post-Test and Change scores in the six measures of the FIRO-F scale. The Alpha training group increased in all six interpersonal measures on the feeling level. The Program Alone showed the same pattern of the Alpha training group, but to a lesser degree. Such a global pattern might indicate for both these groups a greater awareness of their inner world of feelings than existed previously.

The Beta Biofeedback group produced a more differentiated pattern. Feelings of expressed inclusion increased while feelings of desired inclusion decreased. But the discrepancy between the expressed and wanted inclusion feelings did decrease, yielding less conflict at a feeling level over the student's introverted stance. In control, feelings of expressed control decreased slightly while feelings of wanted control decreased strongly. These changes again reduced the discrepancy at a feeling level between their expressed and desired interpersonal power, yielding a lesser degree of conflict over interpersonal independence versus dependence. In affection, their feelings of expressed affection did not change, while their feelings of wanted affection decreased. Again, the conflict over interpersonal closeness versus distance was ameliorated.

The Group Counseling condition produced the following

TABLE Q

FIRO-F PRE-POST SCORES

INCLUSION DIMENSION

	EXPRESSED					WANTED		
GROUP	N	PRE	POST	CHANGE	GROUP	PRE	POST	CHANGE
Alpha Biofeedback	4	2.25	3.25	+1.0	Alpha Biofeedback	3.25	4.50	+1.25
Beta Biofeedback	4	1.25	2.25	+1.0	Beta Biofeedback	4.75	4.25	-0.50
Group Counseling	18	2.22	2.56	+0.34	Group Counseling	4.28	3.83	-0.45
Program Alone	18	2.44	2.67	+0.23	Program Alone	4.22	4.56	+0.34

CONTROL DIMENSION

	EXPRESSED					WANTED		
GROUP	N	PRE	POST	CHANGE	GROUP	PRE	POST	CHANGE
Alpha Biofeedback	4	2.00	3.50	+1.50	Alpha Biofeedback	3.25	4.25	+1.00
Beta Biofeedback	4	2.75	2.50	-0.25	Beta Biofeedback	4.50	3.00	-1.50
Group Counseling	18	1.94	2.00	+ .06	Group Counseling	3.22	4.17	+0.95
Program Alone	18	1.72	2.50	+0.78	Program Alone	3.50	3.78	+0.28

AFFECTION DIMENSION

	EXPRESSED					WANTED		
GROUP	N	PRE	POST	CHANGE	GROUP	PRE	POST	CHANGE
Alpha Biofeedback	4	2.0	3.75	+1.75	Alpha Biofeedback	3.50	4.75	+1.25
Beta Biofeedback	4	2.75	2.75	0	Beta Biofeedback	4.75	4.25	-0.50
Group Counseling	18	3.17	3.06	-0.11	Group Counseling	5.17	5.00	-0.17
Program Alone	18	3.00	3.56	+0.56	Program Alone	4.67	5.17	+0.50

pattern. On inclusion, expressed increased and wanted decreased, producing a reduced conflict over sociability. On control, Group Counseling showed a negligible increase in expressed control and a strong increase in wanted control, producing greater feelings of interpersonal dependence. In affection, the group decreased slightly on both expressed and wanted measures, showing no effect on their feelings of interpersonal closeness.

In summarizing the findings on the FIRO-B and FIRO-F measures of interpersonal stance, the following conclusions are presented:

1. Alpha Biofeedback had a definite effect on the subjects' interpersonal stance. At a feeling level, there were increases in all six areas of interpersonal stance, indicating a greater general awareness of their inner feelings. At a behavioral level, expressed sociability increased while desired sociability decreased; interpersonal control was given up; and expressed and wanted warmth neither increased nor decreased to any marked degree.

2. Beta Biofeedback produced changes at the feeling level that were varied, but which all reduced the conflict between the degree of expressed and desired interpersonal needs. At a behavioral level, expressed sociability did not change, but the desire for greater interactions with people did increase; both the expression and desire for interpersonal control decreased markedly; expressed warmth increased while desired warmth decreased.

3. Group Counseling at the feeling level showed a negligible

effect on sociability and warmth; greater interpersonal dependence was sought. At a behavioral level, expressed sociability increased while desired sociability decreased; both the expressed and desired interpersonal control decreased; and expressed and desired affection neither increased nor decreased to any noticeable extent.

4. The Program Alone condition at the feeling level produced slight but consistent increases on all measures of interpersonal stance, indicating a greater awareness of one's inner world of feelings. At the behavioral level, both expressed and desired sociability increased; both expressed and desired interpersonal control decreased; and expressed warmth did not change while desired affections did show a slight increase.

Holtzman Inkblot Test:

The effects of the program and the adjunctive treatments on levels of projective effect and body image were examined by a set of planned t tests on the Holtzman Inkblot Test (HIT) Pre-Post Change scores on the measures of Anxiety, Hostility and Barrier minus Penetration. Only Cushing students were administered the HIT.

Table R presents the means, standard deviations and the results of the planned t tests for the subjects in the conditions of Alpha training, Beta training, Group Counseling and Program Alone

TABLE R

HOLTZMAN INKBLOT TEST ANXIETY SCALE

POST-PRE VALUES

Group	N	Post-Pre $\bar{X}$	S. D.
Alpha Biofeedback	6	-3.5	2.14
Beta Biofeedback	4	-2.0	3.08
Combined Biofeedback	10	-2.9	2.66
Group Counseling	3	+5.0	4.55
Program Alone	8	-2.0	1.22

Tested Comparison	t value	df	alpha level
$\bar{X}_{alpha} - \bar{X}_{beta}$	-0.91	8	ns
$\bar{X}_{alpha} - \bar{X}_{group}$	+3.97	7	$p < .01$ (2 tail)
$\bar{X}_{alpha} - \bar{X}_{program}$	+1.85	12	$p < .05$ (1 tail)
$\bar{X}_{beta} - \bar{X}_{group}$	2.46	5	$p < .10$ (2 tail)
$\bar{X}_{beta} - \bar{X}_{program}$	0	11	ns
$\bar{X}_{biofeedback} - \bar{X}_{program}$	0.88	16	ns
$\bar{X}_{group} - \bar{X}_{program}$	4.32	9	$p < .01$ (2 tail)

on Anxiety. Also Alpha and Beta subjects were combined for the combined Biofeedback scores.

Inspecting the means, one can see that all groups showed a decrease in projective anxiety throughout the year, except for Group Counseling which showed a marked increase.

Alpha training was not significantly different from Beta training in the magnitude of the anxiety decrements. But Alpha did produce decrements in projective anxiety significantly greater than Group Counseling or the Program Alone. Beta training produced a marginally significant difference between its anxiety decrement and Group Counseling's anxiety increment. There was no difference between Beta training and the Program Alone condition in the anxiety decreases found. Also the combined Biofeedback group was no different from the Program Alone group. Finally the Program Alone condition was significantly different from the Group Counseling in producing anxiety changes.

Table S showed the means, standard deviations and results of the planned t tests on the HIT Hostility change scores. An inspection of the means shows that Group Counseling produced an increase in projective hostility, similar to its effect on anxiety, the two Biofeedback groups produced small increments in hostility, and the Program Alone produced a reduction in hostility.

Alpha training was not significantly different from Beta training on this measure of hostility. Just as both Biofeedback

TABLE S

HOLTZMAN INKBLOT HOSTILITY SCALE

POST-PRE VALUES

Group	N	Post-Pre $\bar{X}$	S. D.
Alpha Biofeedback	6	+1.0	.71
Beta Biofeedback	4	+ .5	4.72
Combined Biofeedback	10	+ .8	3.06
Group Counseling	4	+5.25	3.90
Program Alone	8	-3.00	3.67

Tested Comparison	t value	df	alpha level
$\bar{X}_{alpha} - \bar{X}_{beta}$	+ .26	8	ns
$\bar{X}_{alpha} - \bar{X}_{group}$	-3.37	8	$p < .01$ (2 tail)
$\bar{X}_{alpha} - \bar{X}_{program}$	+2.61	12	$p < .05$ (2 tail)
$\bar{X}_{beta} - \bar{X}_{group}$	-1.69	6	ns
$\bar{X}_{beta} - X_{program}$	+1.42	10	ns
$\bar{X}_{biofeedback} - \bar{X}_{program}$	+2.40	16	$p < .05$ (2 tail)
$\bar{X}_{group} - \bar{X}_{program}$	+3.86	10	$p < .01$ (2 tail)

groups produced anxiety decrements, they both produced hostility increments. Alpha training was significantly different from both Group Counseling and the Program Alone conditions. Alpha produced a smaller increment than did Group Counseling; the Program Alone condition produced a decrement reliably different in magnitude from Alpha's increment. The finding that Beta training could not be differentiated from Group Counseling was due especially to the greater variability in the Beta training group's hostility change scores. For the same reason, Beta training showed no significant difference in its effects from the Program Alone group.

The combined Biofeedback group did show a significant difference from the Program Alone condition on this measure of projective hostility. The Program Alone condition produced a significantly lowered change score from the Biofeedback condition. The two groups with the most disparate means, the Group Counseling (+5.25) and Program Alone (-3.00), were significantly different from each other in their effects on changes in projective hostility.

Table T presents the means, standard deviations and results of a set of planned t tests on the HIT body image score. This score is based on the Barrier minus the Penetration scale. Therefore, a positive score would denote a change towards a stronger image of one's body, while a negative score would indicate a change towards a more vulnerable body image.

The means show that there was little change in the body

TABLE T

HOLTZMAN INKBLOT TEST

BODY IMAGE* SCALE

POST-PRE VALUES

Group	N	Post-Pre $\bar{X}$	S. D.
Alpha Biofeedback	6	+ .83	3.13
Beta Biofeedback	4	-1.25	2.86
Combined Biofeedback	10	0	3.19
Group Counseling	4	-1.00	2.35
Program Alone	8	+0.25	2.05

Tested Comparison	t value	df	alpha level
$\bar{X}_{alpha} - \bar{X}_{beta}$	+1.06	8	ns
$\bar{X}_{alpha} - \bar{X}_{group}$	+0.99	8	ns
$\bar{X}_{alpha} - \bar{X}_{program}$	+0.42	12	ns
$\bar{X}_{beta} - \bar{X}_{group}$	-0.135	6	ns
$\bar{X}_{beta} - \bar{X}_{program}$	-1.05	10	ns
$\bar{X}_{biofeedback} - \bar{X}_{program}$	-0.19	16	ns
$\bar{X}_{group} - \bar{X}_{program}$	-0.95	10	ns

*Body Image = Barrier-Penetration

image score. Alpha training produced the most positive change; then Program Alone produced a smaller positive change. Group Counseling produced a negative change, but Beta training caused the greatest negative change. However, the magnitude of these differences was not sufficient to produce any reliable differentiation among any of the groups.

In summary, Alpha training was not reliably different from Beta training on any of the HIT scales; however, in judging differentiation form the trends, Alpha did produce a greater anxiety decrease, a greater hostility increase and a more positive body image change than did Beta training.

Group Counseling produced the most marked increments in the two affect scales of anxiety and hostility, and also yielded a negative change in body image.

The Program Alone condition showed decrements in anxiety and hostility, and a postive change in body image.

In terms of ranking the four groups on a general beneficial effect upon the HIT change scores, Alpha training and the Program Alone conditions showed the most positive changes on the affect and body image scales. Beta training showed a beneficial effect on anxiety, a negligible effect on hostility and a negative effect on body image. Group Counseling produced negative effects in increasing both affect areas and also in producing a more vulnerable body image.

Durrell Analysis of Reading Difficulty Test:

The effect of the program on changes in the different components of reading ability was examined by a set of planned t tests on dependent samples on the scores of the Durrell Analysis of Reading Difficulty grade level scores in six areas of reading difficulty and the total score. These six areas are Silent Rate, Silent Comprehension, Word Recognition, Word Analysis, Visual Memory and Phonetic Spelling. The total score is labeled Oral Reading. The Durrell was administered to a random stratified sample of 20 students in the program. Stratification was based upon 5 out of 20 students being from each of the four towns, and also 4 out of 20 students selected being females. This stratification permitted a guaranteed representation of the four districts served and the male/female ratio, that existed in the program's targeted population.

Table U presents the Pre-Test and Post-Test grade levels in the different areas of reading ability found in this sample, with the t values and associated rates of advancement scores. All areas showed gains, but the Visual Memory and Phonetic Spelling areas' change scores were not significant. The strongest gains came in Silent Comprehension and the Total Oral Reading scores, with a rate of advancement of 1.76 years. Word Recognition showed 1.60 years advancement, while Silent Rate had an advancement score of 1.48. Word Analysis also showed a significant gain of 0.82 years.

These results show that the program is exerting strong

TABLE U

DURRELL ANALYSIS OF READING DIFFICULTY

MEAN GRADE LEVEL SCORES

AREA	POST-TEST	PRE-TEST	Difference	t values	RATE OF ADVANCEMENT
Silent Rate	4.4	3.7	+ .74**	5.98	1.48
Silent Comprehension	5.2	4.3	+ .88**	4.47	1.76
Word Recognition	5.5	4.7	+ .80**	4.39	1.60
Word Analysis	5.4	5.0	+ .41*	2.23	.82
Visual Memory	4.3	4.0	+ .32	1.60	.64
Phonetic Spelling	4.9	4.6	+ .26	1.32	.52
Oral Reading (Total)	5.1	4.2	+ .88**	5.36	1.76

n = 20

Rate of Advancement = Grade Level Change/Time (Six months)

** = $p \leq .001$

* = $p < .05$

positive effects in most of the areas of reading difficulty. However, in the future, closer attention ought to be paid to the areas of Visual Memory and Phonetic Spelling, if in fact deficits in these areas are strong blocks to the students' ability to read and perform appropriately in other curriculum areas.

Jesness Behavior Checklist (Observer Form):

The effects of the program and the adjunctive treatments on classroom behavior were assessed, in the Cushing resource room only, by the administration of the Jesness Behavior Checklist to the resource room teacher in that district, at the end of the school year.

While there are 14 scales on the checklist, Table V presents the means, standard deviations and results of a planned set of t tests on the composite score of these 14 scales. The composite score is the mean T score of the 14 scales.

An inspection of Table V shows that the mean adaptive behavior scores rank the groups in the following order: Group Counseling - most adaptive behavior; Program Alone - second in adaptive behavior; Beta training - third in adaptive behavior; and Alpha Training - lowest in adaptive behavior.

However, all the composite scores were above the mean T value of 50, which signifies that all the groups were judged as producing, in general, more adaptive, rather than maladaptive,

TABLE V

JESNESS BEHAVIOR CHECKLIST COMPOSITE SCORES

ON ADAPTIVE BEHAVIOR

Group	N	T-score $\bar{X}$	S. D.
Alpha Biofeedback	5	54.56	10.65
Beta Biofeedback	4	61.00	5.02
Combined Biofeedback	9	57.42	9.19
Group Counseling	3	67.83	6.30
Program Alone	8	64.80	6.52

Tested Comparison	t value	df	alpha level
$\bar{X}_{alpha} - \bar{X}_{beta}$	-1.20	7	ns
$\bar{X}_{alpha} - \bar{X}_{group}$	-2.22	6	ns
$\bar{X}_{alpha} - \bar{X}_{program}$	-1.93	11	ns
$\bar{X}_{beta} - \bar{X}_{group}$	-1.61	5	ns
$\bar{X}_{beta} - \bar{X}_{program}$	-1.01	10	ns
$\bar{X}_{biofeedback} - \bar{X}_{program}$	-1.93	15	ns
$\bar{X}_{group} - \bar{X}_{program}$	0.69	9	ns

behavior. The results of the t tests show no significant differences among the conditions on this composite of adaptive classroom behavior.

Table W presents the mean T scores on each of the 14 behavioral scales for each group. Each of these scales is a bipolar scale, with T scores below the mean of 50 indicating behaviors in the maladaptive direction and T scores above the mean of 50 indicating behavior in the adaptive direction. Therefore, this table may be inspected for trends within the groups, but these trends are not indicative of reliable differences.

Group Counseling ranked first among the four groups on the following adaptive behavior dimensions; unobtrusive, friendly, responsible, considerate, rapport, enthusiastic, sociable, articulate, insightful, socially controlled and well controlled in anger.

Alpha training ranked last in the following behavioral dimensions and might be described, in a relative manner, in the following fashion: obtrusive, hostile, irresponsible, inconsiderate, alienated, unable to have good peer relations, non-conforming, anxious, inarticulate, indecisive, attention-seeking and hypersensitive. Only in the area of independence did Alpha training subjects rank better than last.

Beta training deserves mention for being ranked highest in calmness, while Program Alone subjects were ranked highest in independence and conformity.

In summary, there were no significant differences in the

TABLE W

JESNESS BEHAVIOR CHECKLIST SCALE T SCORES

Factor - Adaptive vs Maladaptive	Group			
	Alpha	Beta	Counseling	Program Alone
I - Unobtrusive vs Obtrusive	54.4	56.75	66.67	62.67
II - Friendly vs Hostile	47.2	59.5	64.00	57.67
III - Responsible vs Irresponsible	45.8	57.5	66.67	61.78
IV - Considerate vs Inconsiderate	54.6	65.25	75.00	66.89
V - Independent vs Dependent	61.2	57.5	56.67	63.22
VI - Rapport vs Alienation	45.4	55.25	63.00	53.33
VII - Enthusiasm vs Depression	42.6	53.00	66.33	56.89
VIII - Sociability vs Poor Peer Relations	53.6	58.00	70.00	66.11
IX - Conformity vs Non-Conformity	70.4	75.75	74.67	76.22
X - Calmness vs Anxiety	59.2	71.25	66.67	70.44
XI - Effective Communication vs Inarticulate	66.6	72.75	78.67	69.33
XII - Insight vs Unawareness and Indecisiveness	56.2	66.00	68.00	59.11
XIII - Social Control vs Attention Seeking	56.8	62.5	68.00	64.44
XIV - Anger Control vs Hypersensitive	49.8	60.5	62.33	61.89

overall adaptive behavior scores among the groups, but Alpha training showed the most marked deviation from the other three with the lowest score. Inspection of trends shows Group Counseling to have the most beneficial effects on various behavioral dimensions, and Alpha training to have the poorest effect. Beta training produced the greatest degree of calmness, and Program Alone subjects were judged the most independent and yet conforming. One final note about these measures is that the only scale which showed a discrepancy from the usual pattern of Group Counseling being the most adaptive and Alpha training being the most maladaptive is the independence-dependence scale. On this scale the Group Counseling subjects were the most dependent and Alpha subjects were very close to the Program Alone subjects in the greatest degree of independence. The positive or negative judgments made by the resource room teacher might have been generated from this single characteristic. Therefore, independence in the classroom is troublesome and dependence in the classroom matches role expectations and provides an easier management task for the teacher.

Resource Room Teacher's Student Evaluation:

The effects of the program and the adjunctive treatments on the students' general academic and social-emotional improvement from the resource room teacher's viewpoint was examined by the administration of the resource room teacher's student evaluation

form at the end of the school year. This form included a rating of each student's progress on a five point scale in both academic and social-emotional areas. Zero here would indicate a status of worsening; one would denote no change; two signifies mild improvement; three points to moderate improvement; and four shows great improvement.

Table X presents the means, standard deviations and results of a set of planned t tests on both academic improvement and social-emotional improvement.

In academic improvement, Group Counseling was judged to yield the most positive changes with a mean ranking that would signify moderate improvement. Beta Biofeedback training produced the second most positive improvement score, indicating improvement close to the moderate level. The Program Alone was the third best group in producing academic improvement midway between mild and moderate improvement. Alpha Biofeedback training yielded the poorest improvement scores, with a score midway between no improvement and mild improvement.

The Alpha group's score was sufficiently discrepant to be found significantly below the academic improvement scores of the other three conditions on the set of t tests. This was the basis for the only significant finding on the t tests for both improvement indices among the four conditions.

In social-emotional improvement, Beta training was found

TABLE X

RESOURCE ROOM TEACHERS' RATINGS

ACADEMIC IMPROVEMENT

Group	N	$\bar{X}$	S. D.
Alpha Biofeedback	5	1.6	.489
Beta Biofeedback	4	2.75	.434
Group Counseling	22	2.91	.900
Program Alone	37	2.54	.800

Tested Comparison	t value	df	alpha level
$\bar{X}$alpha $-\bar{X}_{beta}$	-3.67	7	$p < .01$
$\bar{X}$alpha $-\bar{X}_{group}$	-3.12	25	$p < .01$
$\bar{X}$alpha $-\bar{X}_{program}$	-2.55	40	$p < .02$
$\bar{X}$beta $-\bar{X}_{group}$	-0.34	34	ns
$\bar{X}$beta $-\bar{X}_{program}$	+0.57	39	ns
$\bar{X}$group $-\bar{X}_{program}$	+1.64	57	ns

SOCIAL-EMOTIONAL IMPROVEMENT

Group	N	$\bar{X}$	S. D.
Alpha Biofeedback	5	2.0	.894
Beta Biofeedback	4	2.75	.434
Group Counseling	22	2.32	1.082
Program Alone	37	2.43	.975

Tested Comparison	t value	df	alpha level
$\bar{X}$alpha $-\bar{X}_{beta}$	-1.52	7	ns
$\bar{X}$alpha $-\bar{X}_{group}$	-0.61	25	ns
$\bar{X}$alpha $-\bar{X}_{program}$	-0.93	40	ns
$\bar{X}$beta $-\bar{X}_{group}$	+0.77	34	ns
$\bar{X}$beta $-\bar{X}_{program}$	+0.64	39	ns
$\bar{X}$group $-\bar{X}_{program}$	-0.40	57	ns

to yield the most positive improvement score, signifying improvement close to the moderate level. Program Alone produced the second most positive score, indicating improvement midway between the mild and moderate points. Group Counseling's score was slightly below the Program Alone condition. Alpha training produced the lowest degree of social-emotional improvement, with a score indicating mild improvement.

In summary, Beta EEG Biofeedback training produced overall the best improvement, as judged by the resource room teachers. Group Counseling produced the second best overall showing. Program Alone was close behind Group Counseling. Alpha training showed the poorest overall improvement indices. The above summary is based on non-significant trends. Only Alpha training's poorer improvement in the academic area was found significant.

Prescriptive Teacher's Qualitative Summary:

No results will be reported on this measure because of its non-quantitative nature. However, these summaries became part of the students' folders to aid in providing them with appropriate services.

Summary of Results:

To aid in the integration of the findings from the great

number of scales used in the present evaluation, this section will examine each group in terms of its rankings among the four groups on all the measures that were given to the students. A rank of 1 indicates the most positive or greatest change while a rank of 4 indicates the most negative or smallest change. Thirty-two measures will be included in this summary ranking.

Alpha EEG Biofeedback training received a rank of 1 in 16 out of the 32 measures, a rank of 2 in 6 out of the 32 measures, a rank of 3 in 5 out of 32 measures, and a rank of 4 in 5 out of 32 measures. This standing yields a mean rank per measure of 1.97.

Beta EEG Biofeedback training received a rank of 1 in 9 out of 32 measures, a rank of 2 in 6 out of 32 measures, a rank of 3 in 4 out of 32 measures, and a rank of 4 in 13 out of 32 measures. This standing yields a mean rank per measure of 2.66.

Group Counseling received a rank of 1 in 3 out of 32 measures, a rank of 2 in 7 out of 32 measures, a rank of 3 in 14 out of 32 measures, and a rank of 4 in 8 out of 32 measures. This standing yields a mean rank per measure of 2.84.

The Program Alone condition received a rank of 1 in 5 out of 32 measures, a rank of 2 in 15 out of 32 measures, a rank of 3 in 6 out of 32 measures, and a rank of 4 in 6 out of 32 measures. This standing yields a mean rank per measure of 3.34.

In regards to the specifics of the above rankings, Alpha training produced the most positive gains in Mathematics grades and

also in the Arithmetic achievement score on the WRAT. Alpha also had the best record in Study Attitudes gains. In the self-concept area, Alpha training led to the most positive changes in total self esteem, self-acceptance and esteem for the body. On the measures of interpersonal stance, Alpha produced the greatest increases in the following behavioral-level dimensions: expressed Inclusion and wanted Control. At the feeling level, this group showed the greatest increments in expressed Inclusion, wanted Inclusion, expressed Control, wanted Control, expressed Affection, i.e. every area of interpersonal feelings. At the projective level, Alpha training produced the greatest reduction in anxiety on the HIT, and also the most positive change in body image. On the other side of the rankings, Alpha training produced the poorest changes on the teacher ratings of classroom behavior (Jesness composite), academic and social-emotional improvement. Finally, on the behavioral-level measures of interpersonal stance, Alpha group students reduced the most in their wanted Inclusion and in their expressed Affection.

Beta EEG Biofeedback training produced the most positive gains in both English and Science grades, and also in the Spelling achievement score on the WRAT. Beta also had the best record on both Study Habits and Study Orientation increases. In behavioral level measures of interpersonal stance, Beta training produced the greatest increments in wanted Inclusion and expressed Affection. On the feeling level, Beta training produced the greatest increment in

expressed Inclusion, with an increased score equal to Alpha training's increase. Finally, on the teacher ratings of social-emotional improvement, Beta training showed the most positive improvement. Beta training yielded the poorest changes of the four groups in the following areas. Both Mathematics grades and the Arithmetic achievement score on the WRAT were in the negative direction. Beta also showed the poorest record on the Reading achievement score, but this score did indicate a net positive change. In total self esteem, Beta training produced the greatest decrement of the four groups. On measures of interpersonal stance at the behavioral level, Beta had the poorest record in producing increments on expressed Inclusion, both expressed and wanted Control and on wanted Affection. At the feeling level, Beta training yielded the poorest results in wanted Inclusion, again both expressed and wanted Control, and again wanted Affection. At the projective level, Beta training produced the most vulnerable body image change.

Group Counseling produced the most positive gains in the Reading achievement score on the WRAT, the best record on the teachers' rating of classroom behavior (Jesness composite), and the teachers' ratings of academic improvement. Group Counseling produced the poorest changes on the following areas. Both the Social Studies grades and the Spelling achievement scores were in the negative direction. In the area of self-esteem, Group Counseling produced the following poor results: a decrement in self-acceptance, and no change in their esteem for their physical self. On the feeling

level measures of interpersonal stance, expressed Affection showed a decrement, and on the projective level of affect, both hostility and anxiety showed increases throughout the year for this group. On the teachers' rating of classroom behavior, Group Counseling showed the most dependent behavior of the four groups.

The Program Alone condition produced the most positive gains in the Social Studies grades. On the behavioral level measures of interpersonal stance, the Program Alone group had the strongest increments in expressed Control and in wanted Affection. At the projective affect level, the Program Alone produced the greatest decrement in hostility. Finally, on the teachers' ratings of classroom behavior, the Program Alone subjects were judged to be the most independent. The Program Alone condition produced the poorest changes on the following measures. Both English and Science grades showed a negative change. In the area of attitudes and methods important to academic achievement, the Program Alone subjects showed losses in study habits, study attitudes and study orientation. On measures of interpersonal stance at a feeling level, this group showed the weakest increment in expressed Inclusion.

The above summary of findings provided an examination of the four groups' standing on all the measures in the evaluation. The only exceptions were those subscales on the Jesness Behavior Checklist, the Survey of Study Habits and Attitudes, and the Tennessee Self Concept Scale which provided no differentiation among the four groups, or which yielded information redundant to other major scales reported.

A final note concerning this section is that the above differentiation through ranking of the groups' effects on the various scales does not override the general lack of statistically reliable differentiation among the groups, but does provide information at the level of a ranking scale on the groups' diverse effects.

Discussion

Enrollment in the Oklahoma Title VI-G CSDC resource rooms, aided by the diagnostic-prescriptive-media services of the staff, produced the following benefits for the targeted learning disabled adolescent students. Their learning ability in the areas of reading, spelling and arithmetic, measured by the achievement test scores, was across the board enhanced on the average at the rate of one and a quarter years advancement. The students inability to read was remediated to the greatest extent, indicated by an advancement rate of from one and a half to two years.

The benefit of the program showed itself also in significant grade increases in the curriculum areas of Mathematics, English, Social Studies and Science, from the first to the second quarters. However these grades characteristically dropped in the two Spring quarters. An understanding of this pattern of grade enhancement followed by grade decrement is evidently not to be found in their changing competence in the basic academic skills of reading, spelling and arithmetic, since these showed steady increases throughout the four quarters of the year. However, the results on their study habits and study attitudes does provide the most probable explanation for this up and down pattern in their grades. The students' study habits and attitude of educational acceptance showed trends from the first to the third and to the fourth quarters which would indicate an extrapolated value in the second quarter of only minor decrements in both study habits and educational acceptance. Given increasing achievement

in the three basic learning areas and given only negligible decrements in study habits and educational acceptance, these two effects produced the enhanced grades in the second quarter. Then as academic motivation decreased to a significant degree (SSHA decrements) in the third quarter, grades dropped even though the basic learning abilities continued to increase.

It is important to note here that one area of the SSHA showed a significant increase across quarters, Teacher Approval. Therefore, it cannot be said that the effective solution to falling grades is to enhance the student-teacher relationship. The difficulty lies in the students' growing disenchantment with the relevance of academic activities for them, and the associated lack of motivation which leads to poorer study habits. Therefore to simply provide curriculum units in study habits would probably not solve the problem, although it is one important later step in the enhancement of grades for these learning disabled students. The initial step would be a program to keep motivation for academic work high, possibly through curriculum that integrates their daily academic experience with other experiences and goals that hold greater relevance for the students, e.g. career education and work study. Another possible strategy to prevent the accelerating decreases in motivation throughout the year would be scheduled periods during the day during which academic routine would be interrupted by various innovative activities, e.g. biofeedback or group meetings.

However, one could take the position that the measure of grades in curriculum areas is so complexly determined that it does not accurately

assess the degree of learning occurring in these students. From this viewpoint the solution would be to dismiss with grades for these handicapped students. However, this position is not viable in the present educational climate where a premium is placed upon the mainstreaming of handicapped youth. To mainstream would necessitate making the LD students' evaluation of educational progress comparable to the regular students. While this value on mainstreaming might theoretically be considered an arbitrary one, the Oklahoma CSDC is of the opinion that mainstreaming is a principle that represents the greatest wisdom and best serves the interests of handicapped youth. Therefore, it is as important to consider a strategy to increase grades, as it is to consider a strategy to increase the ability to learn.

Participation in the Oklahoma CSDC also resulted in other benefits for the students. In terms of the student's view of himself, a significant change was found in his taking a less extreme view of himself, and also in the style of accentuating positive attributes while not necessarily eliminating negative attributes. The students also experienced a significantly smaller degree of conflict about themselves, and showed a lesser disparity among the three dimensions of self-identity, self-acceptance and esteem for their own behavior. The year's experience in the program seemed to aid in an integration of their feelings of self-worth. Also the program seemed to bring about a significant increase in their esteem for themselves as independent persons and also as social persons interacting in a world

with other peers. In other words, the students became more autonomous and mature persons throughout the year, with better feelings about themselves as equals to their peers.

Interpersonal style also changed significantly throughout the year on both the behavioral and feeling level in the following ways. Inwardly they felt more sociable and more independent; they also felt like they desired greater warmth in their relationships. In their actions, they became more interpersonally dependent, and not only expressed greater warmth to others but also appreciated others' expression of warmth towards them. Apparently their increased interpersonal warmth led them to act in a more dependent fashion with others, and yet this did not lead to feelings of greater interpersonal dependence. Probably their feelings of greater interpersonal independence permitted them to act in a warmer fashion with others, which led to their changing to a more dependent behavioral stance. This rationale gains in plausibility with the finding that the program produced a significant reduction in projective anxiety, throughout the year. It is assumed that the reduced level of anxiety permitted the feelings of greater security and hence the increased felt independence.

Given these changes in the self-esteem area and in their interpersonal style, it is not surprising that the classroom behavior ratings resulted in a description of generally adaptive behavior for the students. Also the resource room teachers' rating in the academic and social-emotional areas showing a judgment of near moderate improvement in both areas gains validity, following an exposition of the beneficial cognitive and affective domain changes found in the program's students.

In a few words, the second year's operation of this CSDC has improved upon the first year's operation. The first year evaluation concluded with a description of the program's effects as mild improvement. Based upon not only the significant increments in grades and achievement scores, but also upon the positive gains discovered in the affective domain, it would be appropriate to label the effects of the present year's efforts as near the moderate improvement level.

IV. DISSEMINATION

A. Accomplishments

The major accomplishments have been delineated in Appendix A, but a recapitulation of those points and several correlated accomplishments will be discussed here.

The first major accomplishment and significant milestone was the passage of House Bill 1051 in the Oklahoma legislature which established 20 (recently expanded to 21) prescriptive teaching centers across the state which provide a replication of one component of the Title VI-G model.

The second milestone was the passage of Senate Bill 536 by the 1974 Oklahoma legislature, requiring all prospective teachers to take a course in the exceptional child to qualify for an Oklahoma Standard Certificate in Education. The bill further stipulates that this course must include information concerning the identification and instruction of children with Specific Learning Disabilities.

The third major accomplishment was the half-day presentation at the state convention of the Association for Children with Learning Disabilities in the Fall of 1974.

The fourth major accomplishment was the presentations by project staff and consultants at the national convention of the Countil for Exceptional Children and the international convention of the Association for Children with Learning Disabilities, in Los Angeles and New York, respectively.

The fifth major accomplishment was a partial result of the

latter accomplishment. This was the requests from and dissemination to persons and agencies in 25 of the 50 states for information regarding the operations of the Oklahoma CSDC.

The sixth major accomplishment was the distribution of the Multi-Media Materials Catalogue to 475 interested parties across the state and nation.

The final major accomplishment and milestone was the workshop held in April 1975 at the project site for secondary L. D. teachers throughout the state, which yielded a near excellent rating by the participants.

Dissemination activities were directed at two other important audiences: parents and community.

Parental Involvement: Parent participation is an integral part of this model project. Parent conferences and home visitations have been an ongoing aspect of the program. Also a parent organization affiliated with the Oklahoma ACLD Chapter was initiated in this area during the past year. At these meetings, formal presentations by staff members and consultants are followed by a discussion period.

Parents have also attended State ACLD meetings, local workshops and open house visitations of the Title VI-G resource rooms. One parent is a member of the Title VI-G Advisory Council and two parents are School Board members.

Parents have been instrumental in strengthening local and State awareness to the Title VI-G model program through formal

presentations to civic organizations and legislative bodies.

There have been more than a few instances of concerned parents contacting the center for information and advice who live in areas of the state quite distant from the targeted school districts.

Community Awareness: Community awareness of the Title VI-G program has been kept high through numerous stories in the local newspapers and presentations at local civic and service organizations. One measure of the effect of this dissemination activity is the favorable responses from both the Lions Club and Kiwanis for financial aid to financially disadvantaged students in need of such costly items as eyeglasses.

B. Slippages

It is difficult to assess slippages in this area since a specified timeline of measurable objectives was lacking during the present contract period. However, the staff believes that the dissemination function is the strongest function of the CSDC, following the service function.

V. INSERVICE TRAINING

A. Accomplishments

Prior to the start of the school year in 1974, orientation programs for administrators and regular classroom teachers were offered to familiarize school personnel with the objectives, methods and types of students to be involved with the project. As the project developed, individual consultation sessions have been

held with all classroom teachers who have project students in class. These conferences, involving the prescriptive teacher and/or resource room teacher and the regular teacher, have been beneficial for increasing (1) the understanding of L. D. students by regular teachers, (2) the use of prescriptive materials and recommendations within their classrooms, (3) general interest in the project and (4) the accuracy of referrals, evaluations and placements.

Weekly staff meetings of all Title VI-G staff are held to evaluate program progress and objectives, to review individual progress of students, and to provide a regular opportunity for sharing concerns and information. These inservice sessions and project staffings have resulted in a high degree of positive attitudes and cooperation among the four participating school districts.

Another form of inservice is the periodical on-site demonstrations of instructional materials, curriculum guides and textbooks by various publishing companies.

A final form of inservice training occurs through the separate component of the CSDC, the Advisory Council.

Advisory Council: Advisory Council meetings have been held characteristically on a monthly basis with the participation of superintendents, principals, the Title VI-G personnel, university consultants, the State Director of Special Education and parents.

The role of the Advisory Council is to aid in:

1. Parent involvement in teacher/student relationships.

2. Program direction in gathering, processing and disseminating information needed for the program.

3. Coordinating efforts among parents, concultants and project staff.

4. Program evaluation through active participation in training institutes for parents who have children with learning disabilities.

5. Recommending necessary state legislation for the passage of special education programs.

6. Implementing the replication strategy with the State Board of Education.

These meetings have served to provide direction and clarity of service programs and to promote communication among the administrative, university and service personnel.

B. Slippages

No slippages have occurred in this function of inservice training.

QUANTITATIVE LISTINGS OF ACCOMPLISHMENTS IN
INFORMATION DISSEMINATION AND PROFESSIONAL ENCIRHMENT

CSDC - OKLAHOMA

JULY 1, 1974 - JUNE 30, 1975

	Number of Presentations	Participants
In Service		
In service orientations for administrators	4	25
In service orientations for school faculty	4	100
In service orientations for project staff	20	Staff
Presentations to local Boards of Education	4	30
In service workshops for school faculty	8	125
Advisory Council meetings	8	Council Members
Staff meetings of Title VI-G personnel	weekly	Staff
Project Workshop for Secondary L. D.	1	110
Community		
PTA Presentations	4	200
Civic Club presentations Lions, Geographic, DAR, Service League	6	175
Local and area news stories concerning Title VI-G project	9	
Use of volunteers	7	
State		
OACLD Convention, State Workshop presented by CSDC Staff	1	150
Consultation by Title VI-G staff to other school systems	40	
Group tours of facilities	50	70
Training Center facilities for advanced practicum students from Oklahoma State University	15	15
Publishers Conference in Oklahoma City	1	
Papers and Presentations	15	300
University Presentations	3	90
National & International Professional Organization Meetings		
Papers and Presentations	5	
International Conferences	2	
National Governors Conference	(1974)	-
Material Dissemination		
Multi-Media Catalogues	475	
Brochures	1,000	
Workshop Packets	125	

SECTION C

I. Spinoff Developments:

The following are unanticipated spinoff developments from the project's efforts:

1. A grant from the Oklahoma State Department of Vocational Education for approximately $8,000 to fund an agricultural-vocational laboratory for learning disabled high school students in the Cushing area.

2. A summer class for adults who had dropped out of high school, most of whom were learning disabled, was held at the state Vocational Technical Education School at Drumright. The project staff served as consultants to this educational endeavor.

3. A new Master's degree program in Learning Disabilities was initiated at Oklahoma State University in the Fall of 1975. Not only the impetus for this new program, but also its success in meeting college, university and regents approval was based upon the experience of the university community with the Title VI-G program.

4. The Psychology Department at Oklahoma State University has instituted new courses in Field Experiences for both graduate and undergraduate students. This new course offering was based upon the experiences of the students who served as a research team for the Title VI-G project this past year. The course offering

structures that experience in serving learning disabled youth as a worthy aspect of a psychology student's curriculum.

5. Courses in learning disabilities have been sanctioned as appropriate tool subjects for clinical psychology doctoral students. Again the result is increased service to the learning disabled youth in the targeted areas at no additional cost.

6. The newly accredited School Psychology program at Oklahoma State University has added a course entitled Psychological Evaluation for School Psychology. A major section of this course is devoted to learning disabilities.

APPENDIX A

Dissemination Activities and Materials

Dissemination Activities:

At the state level, evidence of the impact and directives of the Title VI-G model program have been apparent. One law passed by the Oklahoma legislature, House Bill 1051, established 20 prescriptive teaching centers across the state which provide screening, diagnostic evaluation, prescriptive interventions and curriculum materials library services. These centers and the schools they service are using a delivery system similar to that established by the Title VI-G project. Further, the newly funded classrooms for students with learning problems in the state are set up as learning resource rooms, rather than as the self-contained classrooms of the past.

The Advisory Council and Title VI-G center have further been instrumental in the passage of Senate Bill 536 by the 1974 Oklahoma state legislature, requiring all prospective teachers to take a course in the exceptional child to qualify for an Oklahoma Standard Certificate in Education. The bill further stipulates that this course must include information concerning the identification and instruction of children with Specific Learning Disabilities.

The State Department of Education has facilitated information dissemination through (1) articles in various educational publications, (2) contact with various organizations and other interested groups at the state and national levels and (3) a feature news article detailing project functions and objectives.

Civic programs, including talks to local PTA and other clubs have further served to inform the public as to the nature and objectives of the program. The local newspaper has cooperatively printed many local news articles regarding the project.

To disseminate information concerning facilities, the intervention team prepared brochures describing the project, which have been distributed at both state (OACLD) and national (ACLD, and the National Governors Conference, June 1974) professional meetings. A listing of available curriculum materials has also been compiled for use by resource room teachers, university teacher-in-training, and other interested persons. These brochures and materials lists were made publicly available at the OACLD conference in October 1974, at a materials demonstration both set up by the project staff.

The project director and intervention team have been responsible for several convention programs and paper readings. At the 1974 OACLD conference, this team plus university consultants presented a half-day workshop on secondary level learning problems. Approximately 150 L. D. specialists were in attendance. One statewide information dissemination has been requests from a number of in and out of state groups interested in touring the model project's facilities and receiving materials on program development.

Yearly participation at the Publisher's Conference held in Oklahoma City, under the sponsorship of the MALRC, has provided a regular opportunity to become familiar with the recent publications

of 20 or more publishing companies.

A workshop was held at the project site in April of 1975 for an audience of secondary L. D. teachers throughout the state. The number attending this workshop was 106. Each participant rated the various components of the workshop. This major dissemination activity was given a mean rating of 3.6 on a 4.0 scale, by the audience, which indicated a rating of very good by the participants.

At the national level, the model project staff have continually attended field related national professional conferences to keep informed of recent developments and to exchange ideas with colleagues. Such conferences include OACLD, NACLD and CEC. As a result of these professional contacts, the model project has distributed materials on referral, assessment and remediation upon request to persons in Arizona, Arkansas, California, Colorado, Delaware, Kansas, Iowa, Massachusetts, Missouri, Nebraska, New Mexico, New York, Ohio, North Carolina, Illinois, Florida, Georgia, Idaho, Kentucky, Pennsylvania, South Dakota, Tennessee, Texas, Connecticut and Washington, D.C. Many of these persons are involved in initiating and developing similar secondary programs.

An evaluation of the effectiveness of the dissemination activities has been included throughout the previous discussion. However, to summarize the important highlights of these activities, the passage of the two different Oklahoma State bills are important milestones in the CSDC's dissemination activities. Another important indicant is the request from 25 of the 50 states for information

about this project's operations. A third important indicant is the distribution of 475 copies of the Multi-Media Materials Catalogue, developed by this CSDC. One final measure of dissemination effectiveness is the near excellent rating given by the participants of the workshop held in April 1975 for all secondary L. D. teachers within the state.

Dissemination Materials:

The following dissemination materials are included in this appendix:

1. Multi-Media Materials Catalogue
2. Program brochure
3. Workshop Packet (including all forms developed and utilized by the CSDC)
4. Set of xeroxed copies of newspaper stories relating to the center's operations.